

FIG. 1

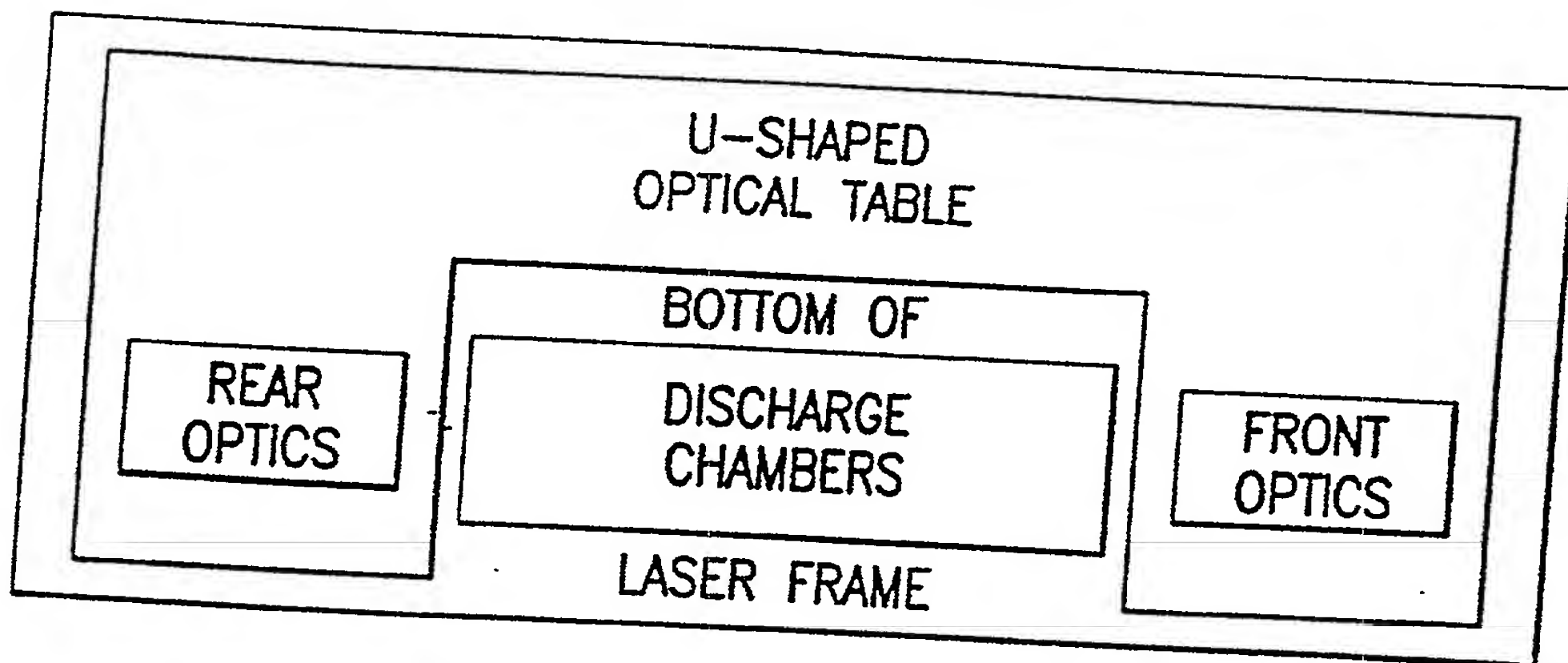


FIG. 1A

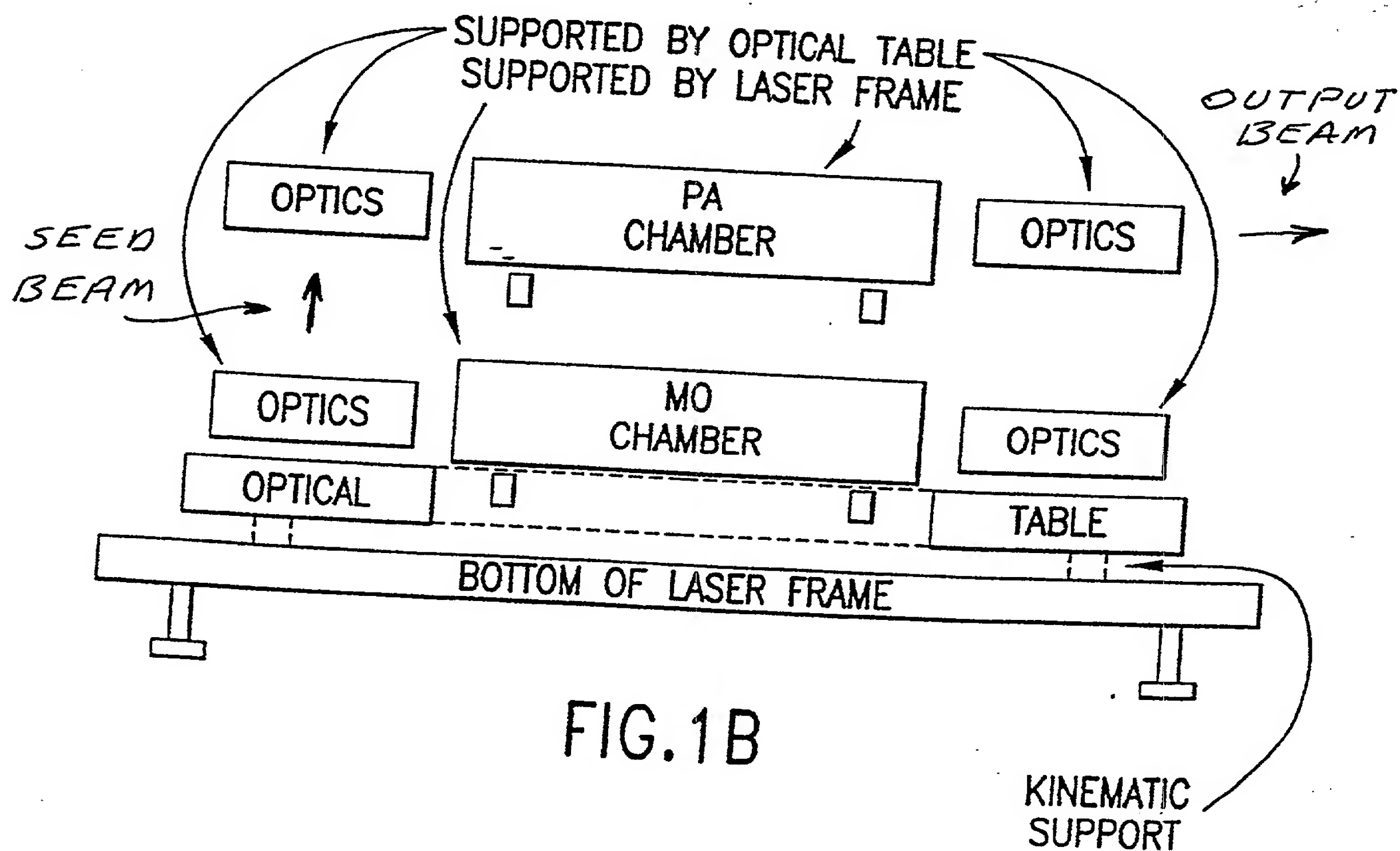


FIG. 1B

BALL IN GROOVE

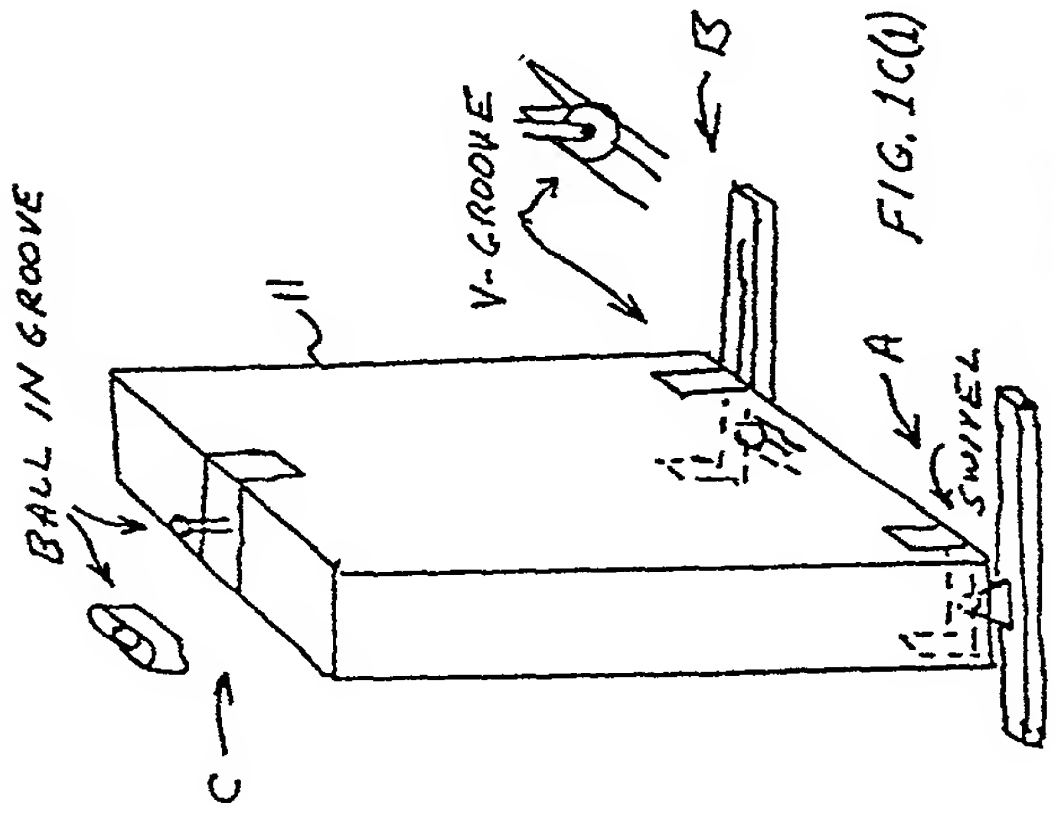


FIG. 1C(1)

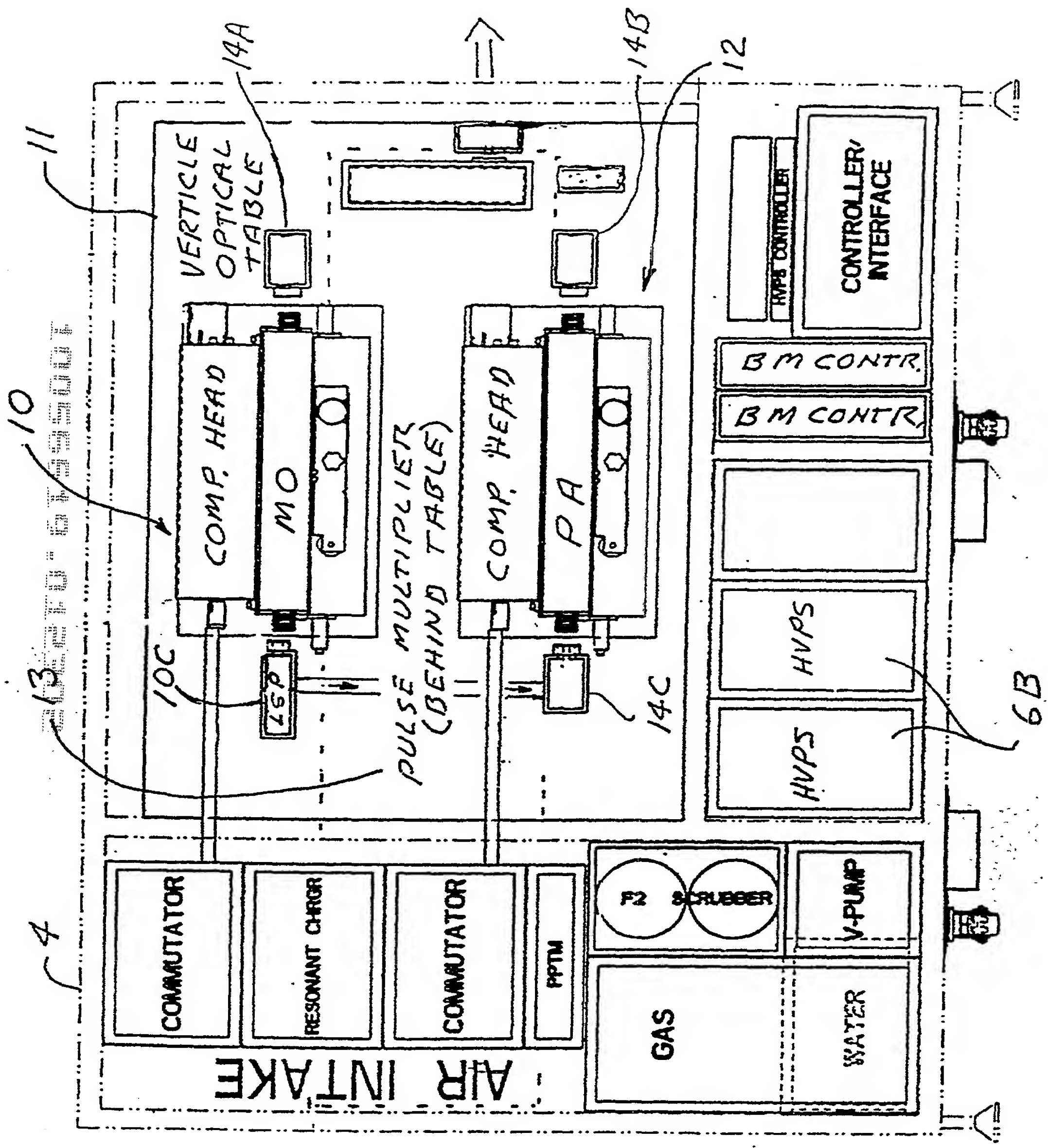
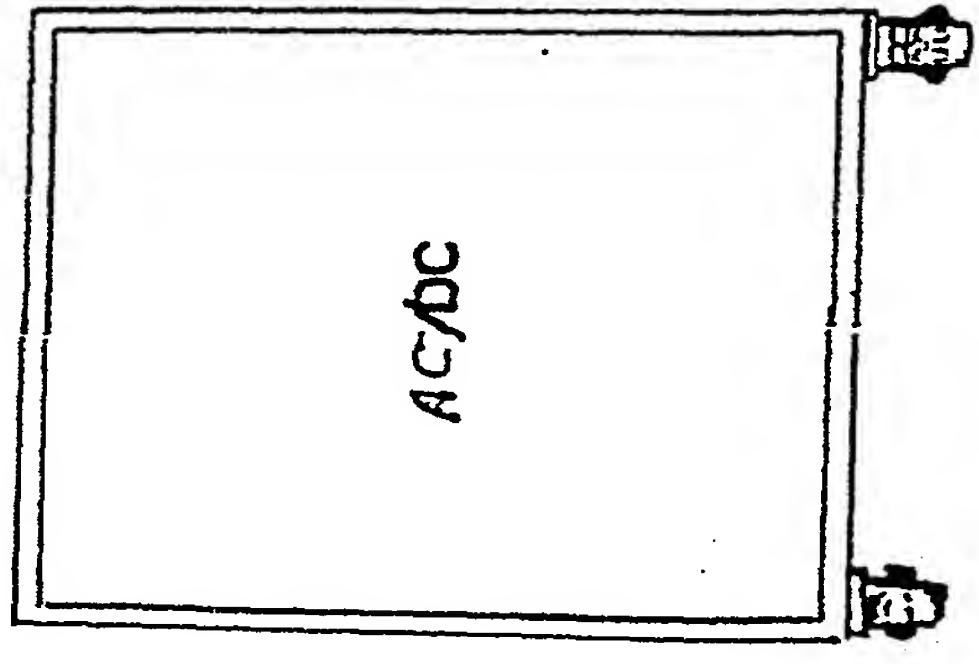


FIG. 1C

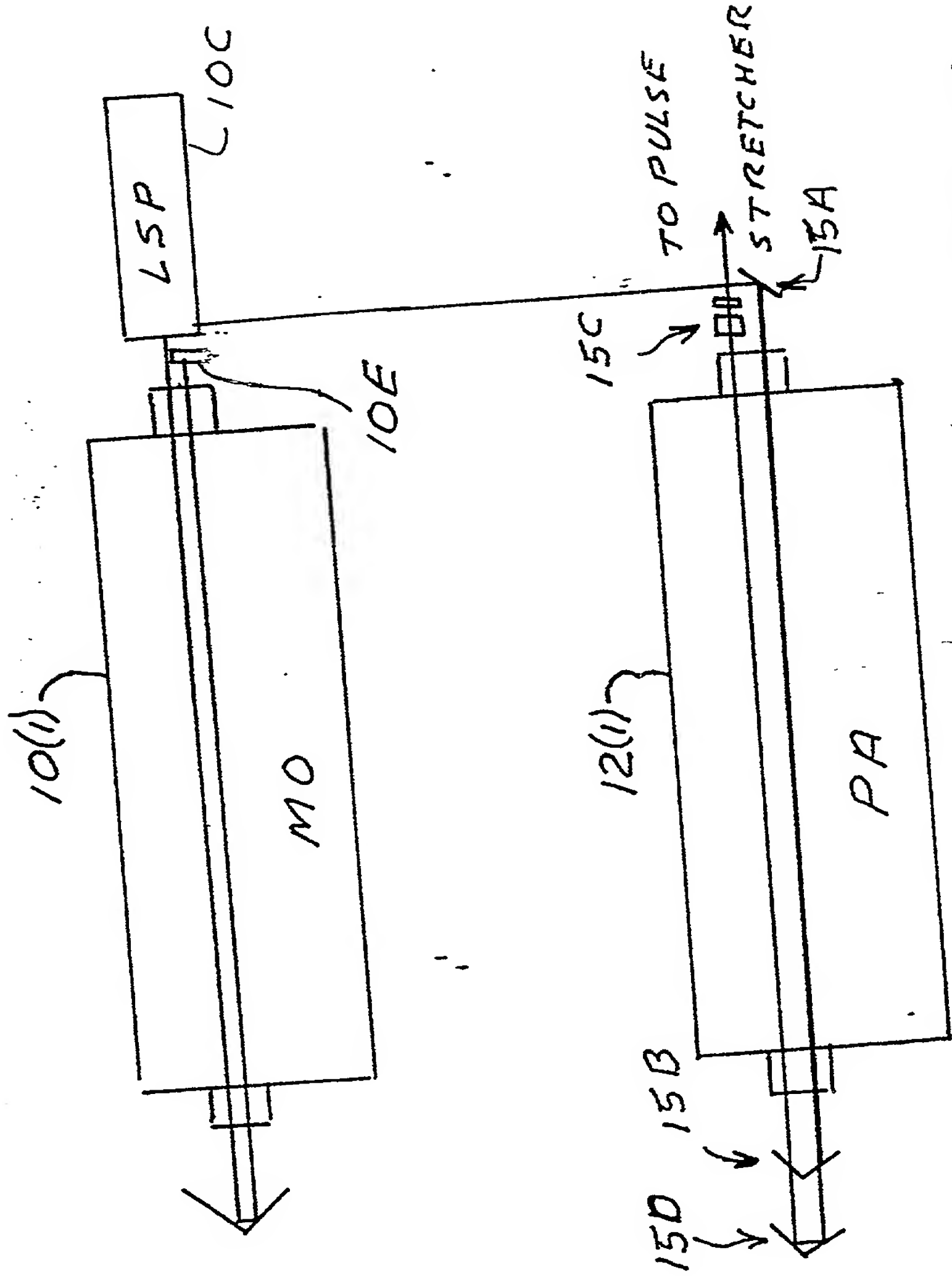


FIG. 1D

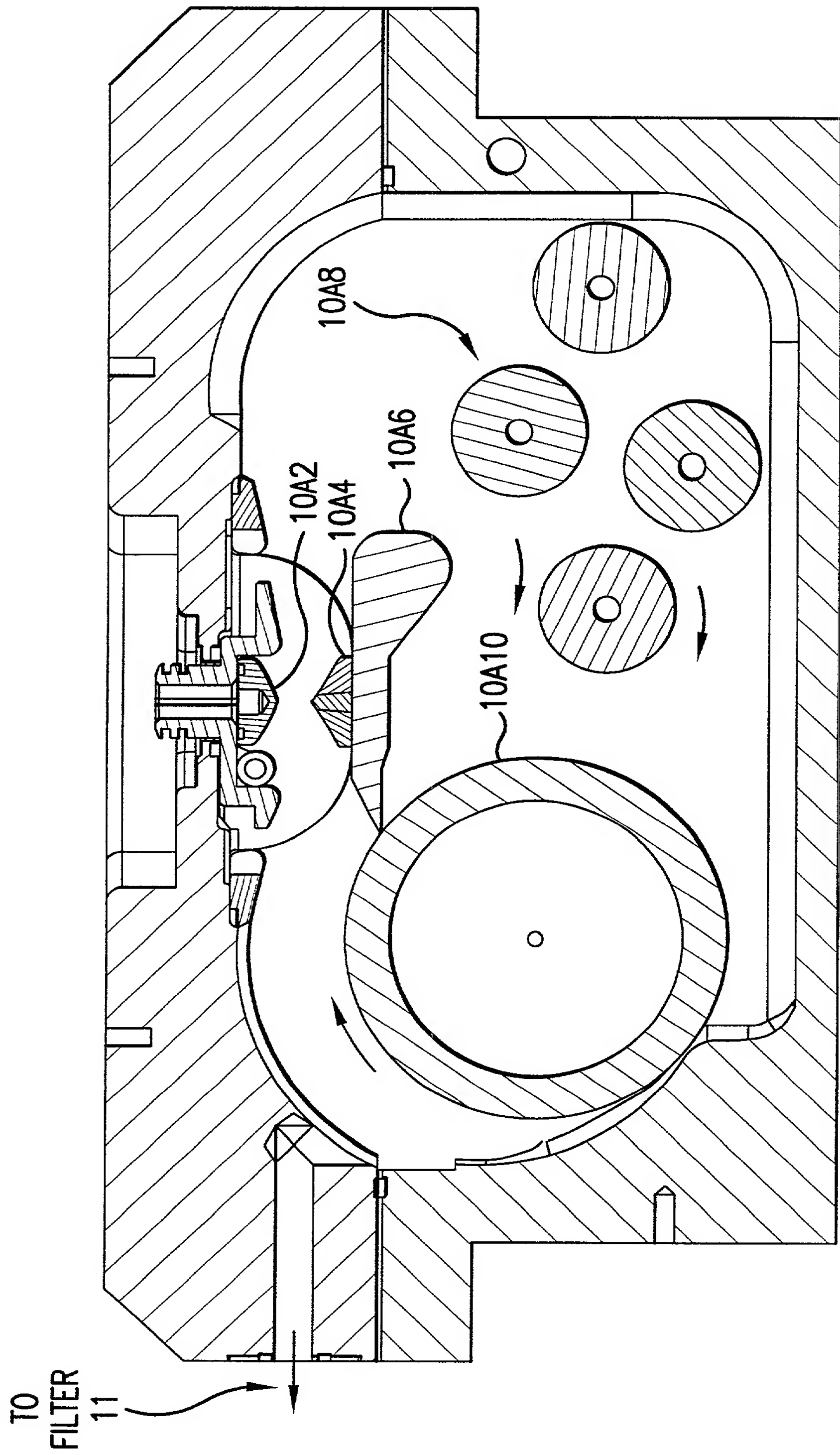


FIG. 2

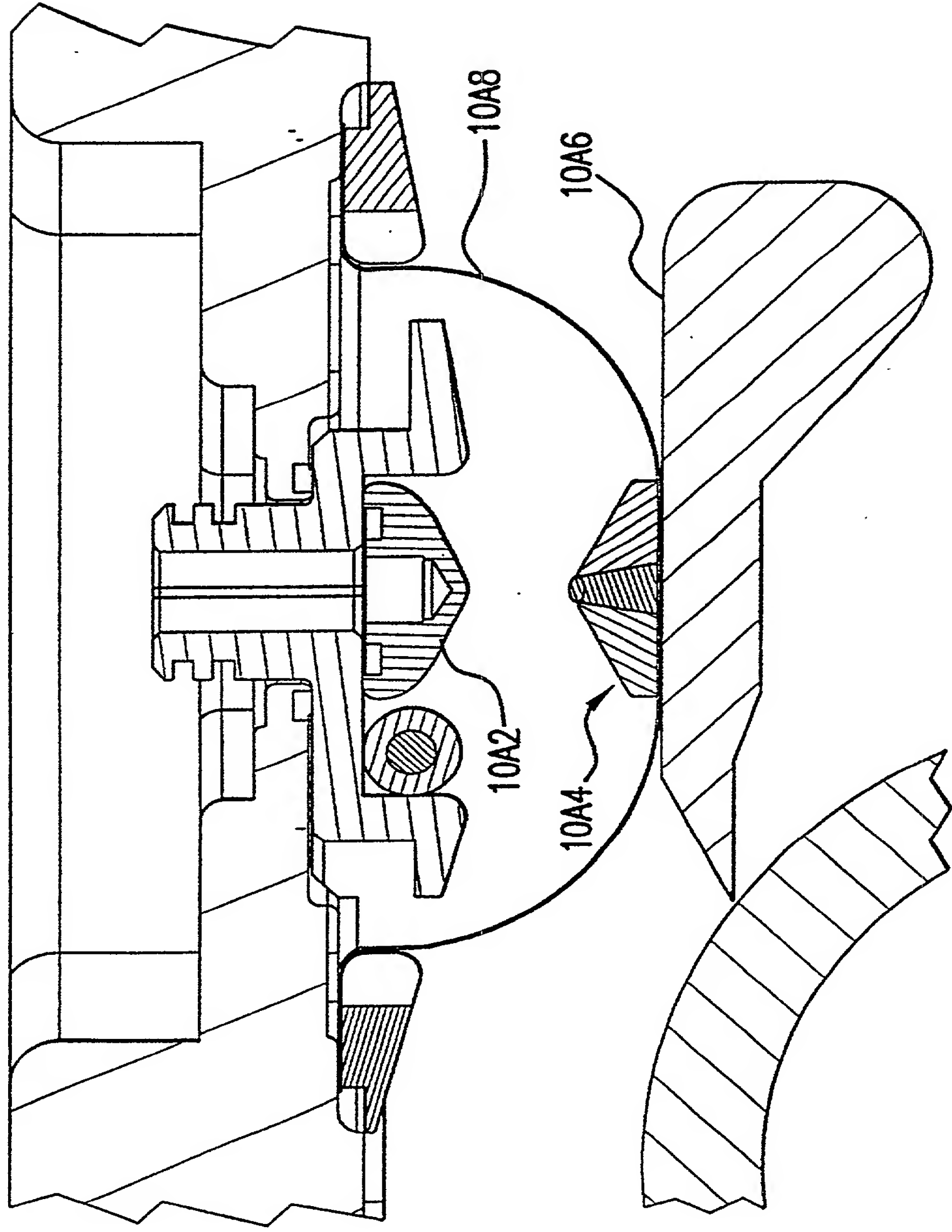


FIG. 3



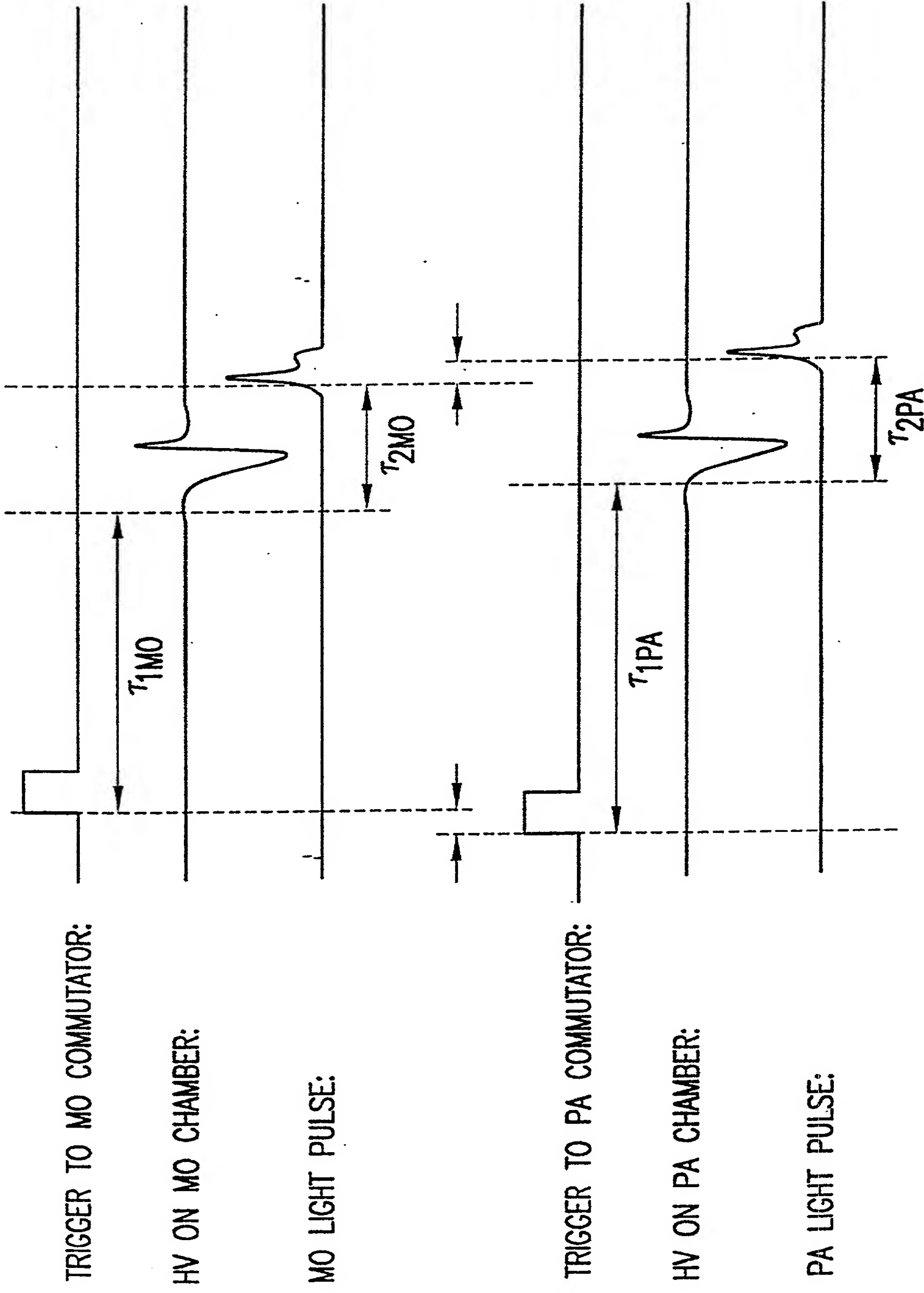


FIG.4A



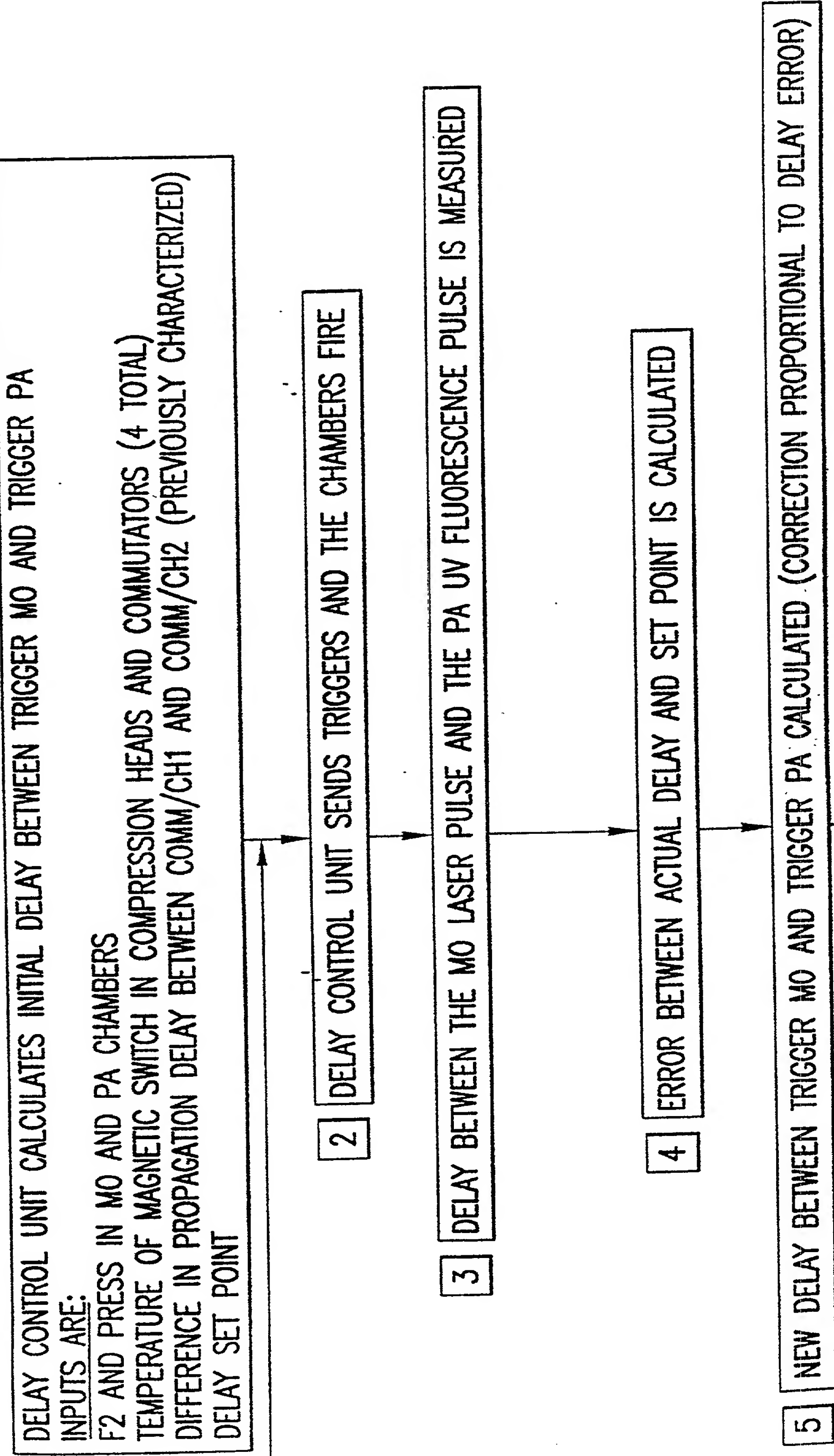


FIG. 4B

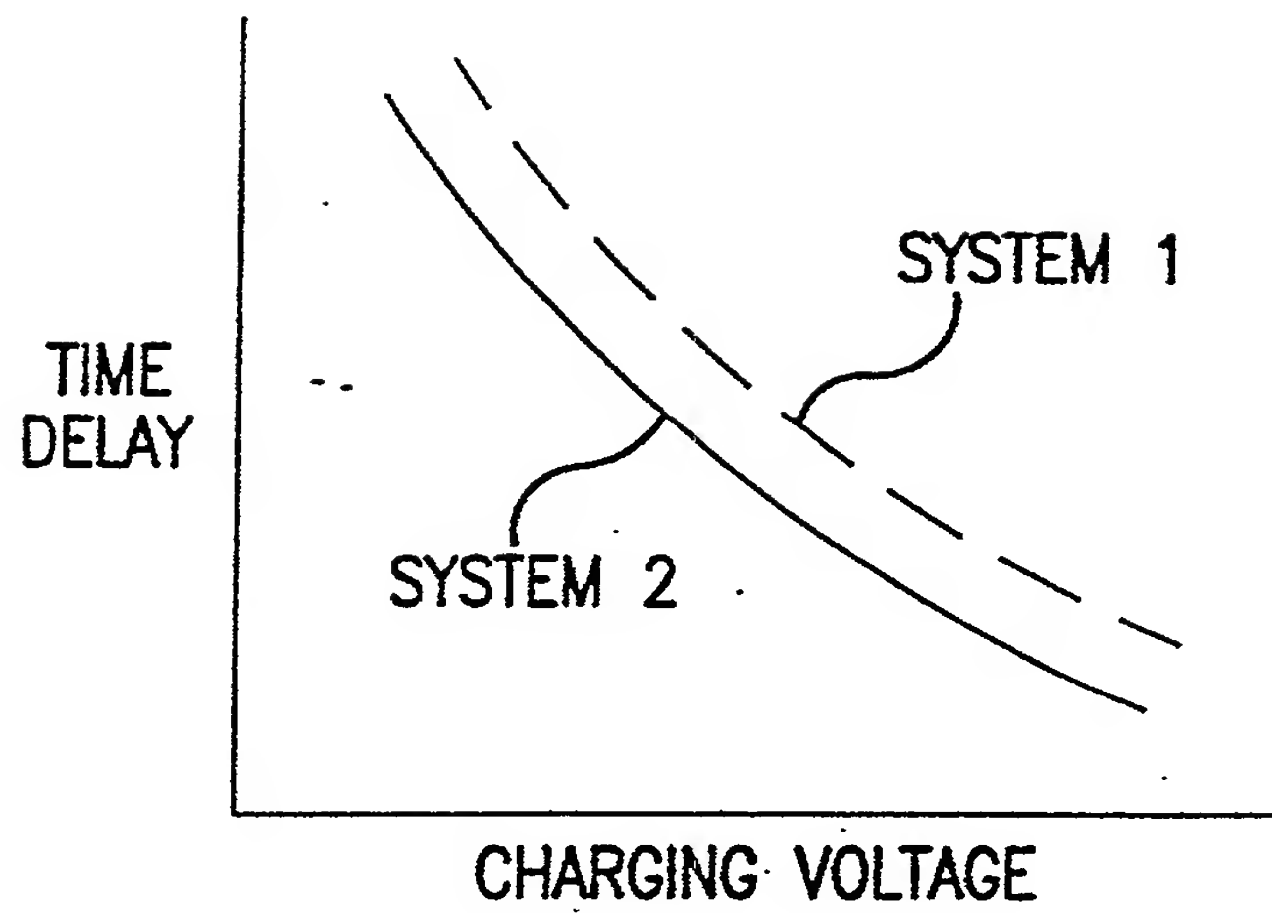
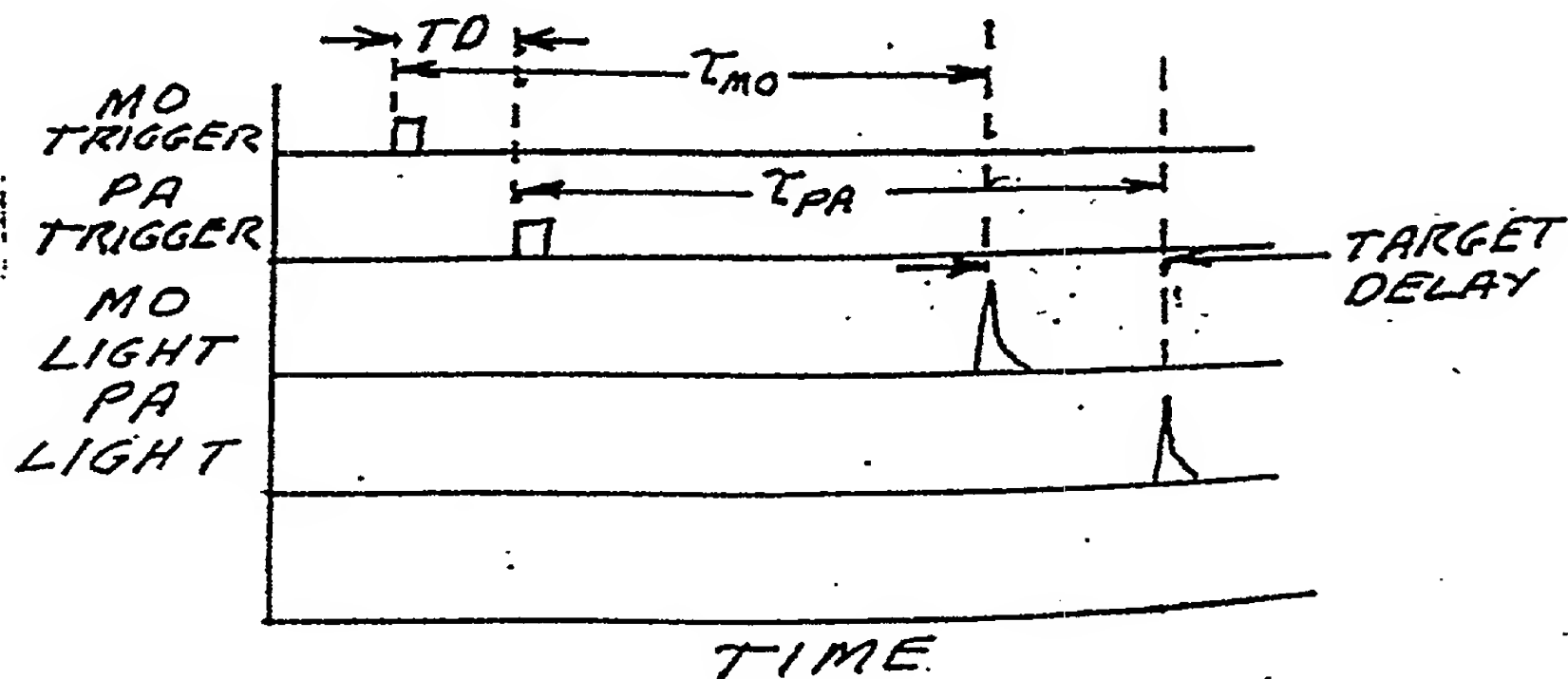


FIG.4C

```

graph TD
    START([START]) --> D1{HAS 1 MINUTE ELAPSED SINCE PAT?}
    D1 -- N --> S1[SET TO = TOL]
    S1 --> D2{HAS LASER PULSE BEEN REQUESTED?}
    D2 -- N --> D1
    D2 -- Y --> S2[SET TD = 110 NS]
    S2 --> D3{HAS LASER PULSE BEEN REQUESTED?}
    D3 -- N --> D1
    D3 -- Y --> D4{DOES MO P-CELL > THRESHOLD?}
    D4 --> S3[MEASURE MO P-CELL]
    S3 --> S4[TRIGGER PA RECORD PAT START TIMER T2]
    S4 --> D5{HAS TIME SINCE MO EXCEEDED TO?}
    D5 -- Y --> S5[STOP TIMER T2 AND CALCULATE TPA]
    S5 --> D6{DOES PA P-CELL > THRESHOLD?}
    D6 --> S6[MEASURE PA P-CELL]
    S6 --> S7[STOP TIMER T1 AND CALCULATE TMO]
    S7 --> S8[MEASURE MO P-CELL]
    S8 --> S9[TRIGGER PA RECORD PAT START TIMER T2]
    S9 --> S10[STOP TIMER T2 AND CALCULATE TPA]
    S10 --> S11[MEASURE PA P-CELL]
    S11 --> S12[STOP TIMER T1 AND CALCULATE TMO]
    S12 --> S13[MEASURE MO P-CELL]
    S13 --> S14[TRIGGER PA RECORD PAT START TIMER T2]
    S14 --> S15[STOP TIMER T2 AND CALCULATE TPA]
    S15 --> S16[MEASURE PA P-CELL]
    S16 --> S17[STOP TIMER T1 AND CALCULATE TMO]
    S17 --> S18[MEASURE MO P-CELL]
    S18 --> S19[TRIGGER PA RECORD PAT START TIMER T2]
    S19 --> S20[STOP TIMER T2 AND CALCULATE TPA]
    S20 --> S21[MEASURE PA P-CELL]
    S21 --> S22[STOP TIMER T1 AND CALCULATE TMO]
    S22 --> S23[MEASURE MO P-CELL]
    S23 --> S24[TRIGGER PA RECORD PAT START TIMER T2]
    S24 --> S25[STOP TIMER T2 AND CALCULATE TPA]
    S25 --> S26[MEASURE PA P-CELL]
    S26 --> S27[STOP TIMER T1 AND CALCULATE TMO]
    S27 --> S28[MEASURE MO P-CELL]
    S28 --> S29[TRIGGER PA RECORD PAT START TIMER T2]
    S29 --> S30[STOP TIMER T2 AND CALCULATE TPA]
    S30 --> S31[MEASURE PA P-CELL]
    S31 --> S32[STOP TIMER T1 AND CALCULATE TMO]
    S32 --> S33[MEASURE MO P-CELL]
    S33 --> S34[TRIGGER PA RECORD PAT START TIMER T2]
    S34 --> S35[STOP TIMER T2 AND CALCULATE TPA]
    S35 --> S36[MEASURE PA P-CELL]
    S36 --> S37[STOP TIMER T1 AND CALCULATE TMO]
    S37 --> S38[MEASURE MO P-CELL]
    S38 --> S39[TRIGGER PA RECORD PAT START TIMER T2]
    S39 --> S40[STOP TIMER T2 AND CALCULATE TPA]
    S40 --> S41[MEASURE PA P-CELL]
    S41 --> S42[STOP TIMER T1 AND CALCULATE TMO]
    S42 --> S43[MEASURE MO P-CELL]
    S43 --> S44[TRIGGER PA RECORD PAT START TIMER T2]
    S44 --> S45[STOP TIMER T2 AND CALCULATE TPA]
    S45 --> S46[MEASURE PA P-CELL]
    S46 --> S47[STOP TIMER T1 AND CALCULATE TMO]
    S47 --> S48[MEASURE MO P-CELL]
    S48 --> S49[TRIGGER PA RECORD PAT START TIMER T2]
    S49 --> S50[STOP TIMER T2 AND CALCULATE TPA]
    S50 --> S51[MEASURE PA P-CELL]
    S51 --> S52[STOP TIMER T1 AND CALCULATE TMO]
    S52 --> S53[MEASURE MO P-CELL]
    S53 --> S54[TRIGGER PA RECORD PAT START TIMER T2]
    S54 --> S55[STOP TIMER T2 AND CALCULATE TPA]
    S55 --> S56[MEASURE PA P-CELL]
    S56 --> S57[STOP TIMER T1 AND CALCULATE TMO]
    S57 --> S58[MEASURE MO P-CELL]
    S58 --> S59[TRIGGER PA RECORD PAT START TIMER T2]
    S59 --> S60[STOP TIMER T2 AND CALCULATE TPA]
    S60 --> S61[MEASURE PA P-CELL]
    S61 --> S62[STOP TIMER T1 AND CALCULATE TMO]
    S62 --> S63[MEASURE MO P-CELL]
    S63 --> S64[TRIGGER PA RECORD PAT START TIMER T2]
    S64 --> S65[STOP TIMER T2 AND CALCULATE TPA]
    S65 --> S66[MEASURE PA P-CELL]
    S66 --> S67[STOP TIMER T1 AND CALCULATE TMO]
    S67 --> S68[MEASURE MO P-CELL]
    S68 --> S69[TRIGGER PA RECORD PAT START TIMER T2]
    S69 --> S70[STOP TIMER T2 AND CALCULATE TPA]
    S70 --> S71[MEASURE PA P-CELL]
    S71 --> S72[STOP TIMER T1 AND CALCULATE TMO]
    S72 --> S73[MEASURE MO P-CELL]
    S73 --> S74[TRIGGER PA RECORD PAT START TIMER T2]
    S74 --> S75[STOP TIMER T2 AND CALCULATE TPA]
    S75 --> S76[MEASURE PA P-CELL]
    S76 --> S77[STOP TIMER T1 AND CALCULATE TMO]
    S77 --> S78[MEASURE MO P-CELL]
    S78 --> S79[TRIGGER PA RECORD PAT START TIMER T2]
    S79 --> S80[STOP TIMER T2 AND CALCULATE TPA]
    S80 --> S81[MEASURE PA P-CELL]
    S81 --> S82[STOP TIMER T1 AND CALCULATE TMO]
    S82 --> S83[MEASURE MO P-CELL]
    S83 --> S84[TRIGGER PA RECORD PAT START TIMER T2]
    S84 --> S85[STOP TIMER T2 AND CALCULATE TPA]
    S85 --> S86[MEASURE PA P-CELL]
    S86 --> S87[STOP TIMER T1 AND CALCULATE TMO]
    S87 --> S88[MEASURE MO P-CELL]
    S88 --> S89[TRIGGER PA RECORD PAT START TIMER T2]
    S89 --> S90[STOP TIMER T2 AND CALCULATE TPA]
    S90 --> S91[MEASURE PA P-CELL]
    S91 --> S92[STOP TIMER T1 AND CALCULATE TMO]
    S92 --> S93[MEASURE MO P-CELL]
    S93 --> S94[TRIGGER PA RECORD PAT START TIMER T2]
    S94 --> S95[STOP TIMER T2 AND CALCULATE TPA]
    S95 --> S96[MEASURE PA P-CELL]
    S96 --> S97[STOP TIMER T1 AND CALCULATE TMO]
    S97 --> S98[MEASURE MO P-CELL]
    S98 --> S99[TRIGGER PA RECORD PAT START TIMER T2]
    S99 --> S100[STOP TIMER T2 AND CALCULATE TPA]
    S100 --> S101[MEASURE PA P-CELL]
    S101 --> S102[STOP TIMER T1 AND CALCULATE TMO]
    S102 --> S103[MEASURE MO P-CELL]
    S103 --> S104[TRIGGER PA RECORD PAT START TIMER T2]
    S104 --> S105[STOP TIMER T2 AND CALCULATE TPA]
    S105 --> S106[MEASURE PA P-CELL]
    S106 --> S107[STOP TIMER T1 AND CALCULATE TMO]
    S107 --> S108[MEASURE MO P-CELL]
    S108 --> S109[TRIGGER PA RECORD PAT START TIMER T2]
    S109 --> S110[STOP TIMER T2 AND CALCULATE TPA]
    S110 --> S111[MEASURE PA P-CELL]
    S111 --> S112[STOP TIMER T1 AND CALCULATE TMO]
    S112 --> S113[MEASURE MO P-CELL]
    S113 --> S114[TRIGGER PA RECORD PAT START TIMER T2]
    S114 --> S115[STOP TIMER T2 AND CALCULATE TPA]
    S115 --> S116[MEASURE PA P-CELL]
    S116 --> S117[STOP TIMER T1 AND CALCULATE TMO]
    S117 --> S118[MEASURE MO P-CELL]
    S118 --> S119[TRIGGER PA RECORD PAT START TIMER T2]
    S119 --> S120[STOP TIMER T2 AND CALCULATE TPA]
    S120 --> S121[MEASURE PA P-CELL]
    S121 --> S122[STOP TIMER T1 AND CALCULATE TMO]
    S122 --> S123[MEASURE MO P-CELL]
    S123 --> S124[TRIGGER PA RECORD PAT START TIMER T2]
    S124 --> S125[STOP TIMER T2 AND CALCULATE TPA]
    S125 --> S126[MEASURE PA P-CELL]
    S126 --> S127[STOP TIMER T1 AND CALCULATE TMO]
    S127 --> S128[MEASURE MO P-CELL]
    S128 --> S129[TRIGGER PA RECORD PAT START TIMER T2]
    S129 --> S130[STOP TIMER T2 AND CALCULATE TPA]
    S130 --> S131[MEASURE PA P-CELL]
    S131 --> S132[STOP TIMER T1 AND CALCULATE TMO]
    S132 --> S133[MEASURE MO P-CELL]
    S133 --> S134[TRIGGER PA RECORD PAT START TIMER T2]
    S134 --> S135[STOP TIMER T2 AND CALCULATE TPA]
    S135 --> S136[MEASURE PA P-CELL]
    S136 --> S137[STOP TIMER T1 AND CALCULATE TMO]
    S137 --> S138[MEASURE MO P-CELL]
    S138 --> S139[TRIGGER PA RECORD PAT START TIMER T2]
    S139 --> S140[STOP TIMER T2 AND CALCULATE TPA]
    S140 --> S141[MEASURE PA P-CELL]
    S141 --> S142[STOP TIMER T1 AND CALCULATE TMO]
    S142 --> S143[MEASURE MO P-CELL]
    S143 --> S144[TRIGGER PA RECORD PAT START TIMER T2]
    S144 --> S145[STOP TIMER T2 AND CALCULATE TPA]
    S145 --> S146[MEASURE PA P-CELL]
    S146 --> S147[STOP TIMER T1 AND CALCULATE TMO]
    S147 --> S148[MEASURE MO P-CELL]
    S148 --> S149[TRIGGER PA RECORD PAT START TIMER T2]
    S149 --> S150[STOP TIMER T2 AND CALCULATE TPA]
    S150 --> S151[MEASURE PA P-CELL]
    S151 --> S152[STOP TIMER T1 AND CALCULATE TMO]
    S152 --> S153[MEASURE MO P-CELL]
    S153 --> S154[TRIGGER PA RECORD PAT START TIMER T2]
    S154 --> S155[STOP TIMER T2 AND CALCULATE TPA]
    S155 --> S156[MEASURE PA P-CELL]
    S156 --> S157[STOP TIMER T1 AND CALCULATE TMO]
    S157 --> S158[MEASURE MO P-CELL]
    S158 --> S159[TRIGGER PA RECORD PAT START TIMER T2]
    S159 --> S160[STOP TIMER T2 AND CALCULATE TPA]
    S160 --> S161[MEASURE PA P-CELL]
    S161 --> S162[STOP TIMER T1 AND CALCULATE TMO]
    S162 --> S163[MEASURE MO P-CELL]
    S163 --> S164[TRIGGER PA RECORD PAT START TIMER T2]
    S164 --> S165[STOP TIMER T2 AND CALCULATE TPA]
    S165 --> S166[MEASURE PA P-CELL]
    S166 --> S167[STOP TIMER T1 AND CALCULATE TMO]
    S167 --> S168[MEASURE MO P-CELL]
    S168 --> S169[TRIGGER PA RECORD PAT START TIMER T2]
    S169 --> S170[STOP TIMER T2 AND CALCULATE TPA]
    S170 --> S171[MEASURE PA P-CELL]
    S171 --> S172[STOP TIMER T1 AND CALCULATE TMO]
    S172 --> S173[MEASURE MO P-CELL]
    S173 --> S174[TRIGGER PA RECORD PAT START TIMER T2]
```

FIG. 4D1



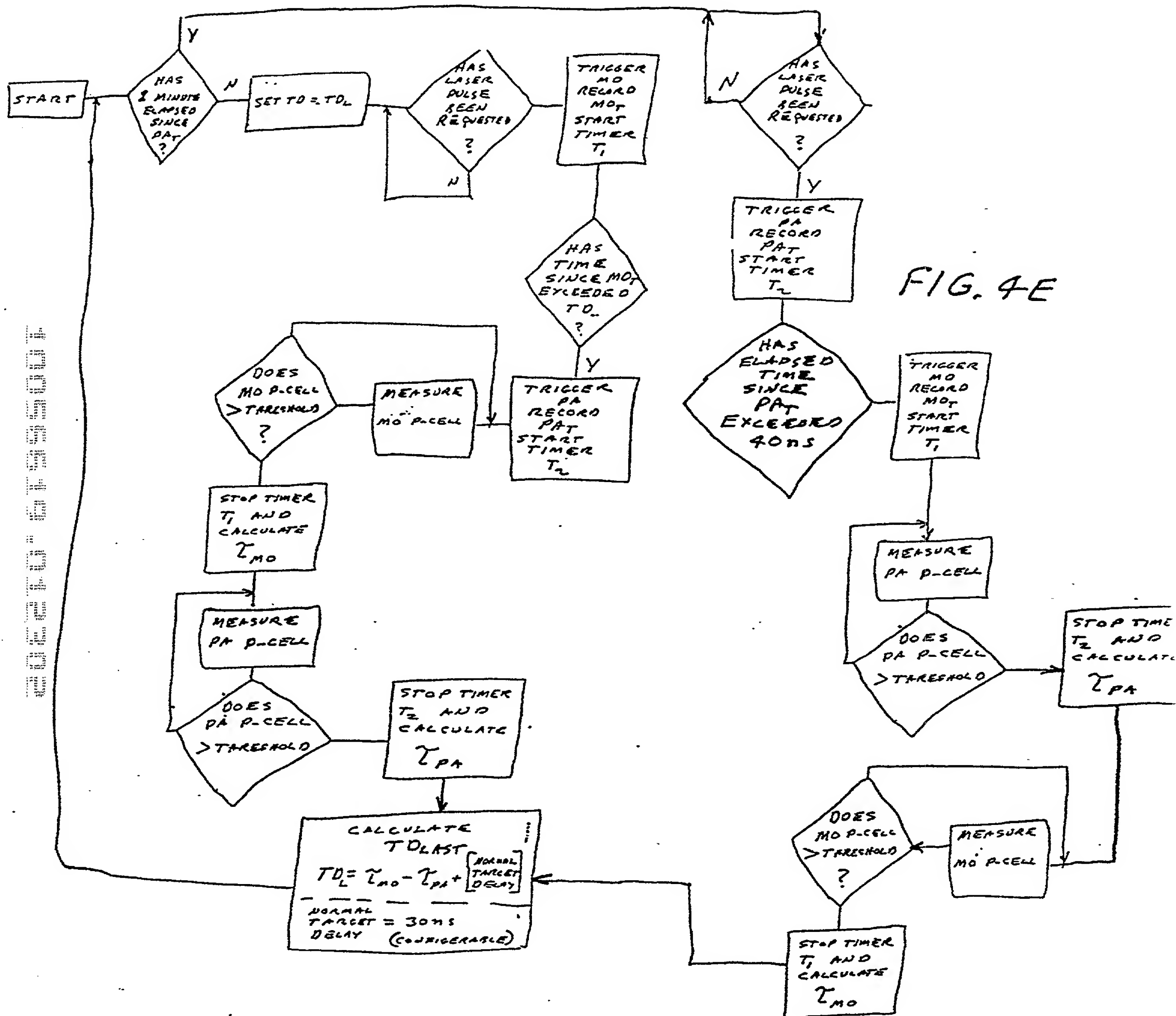
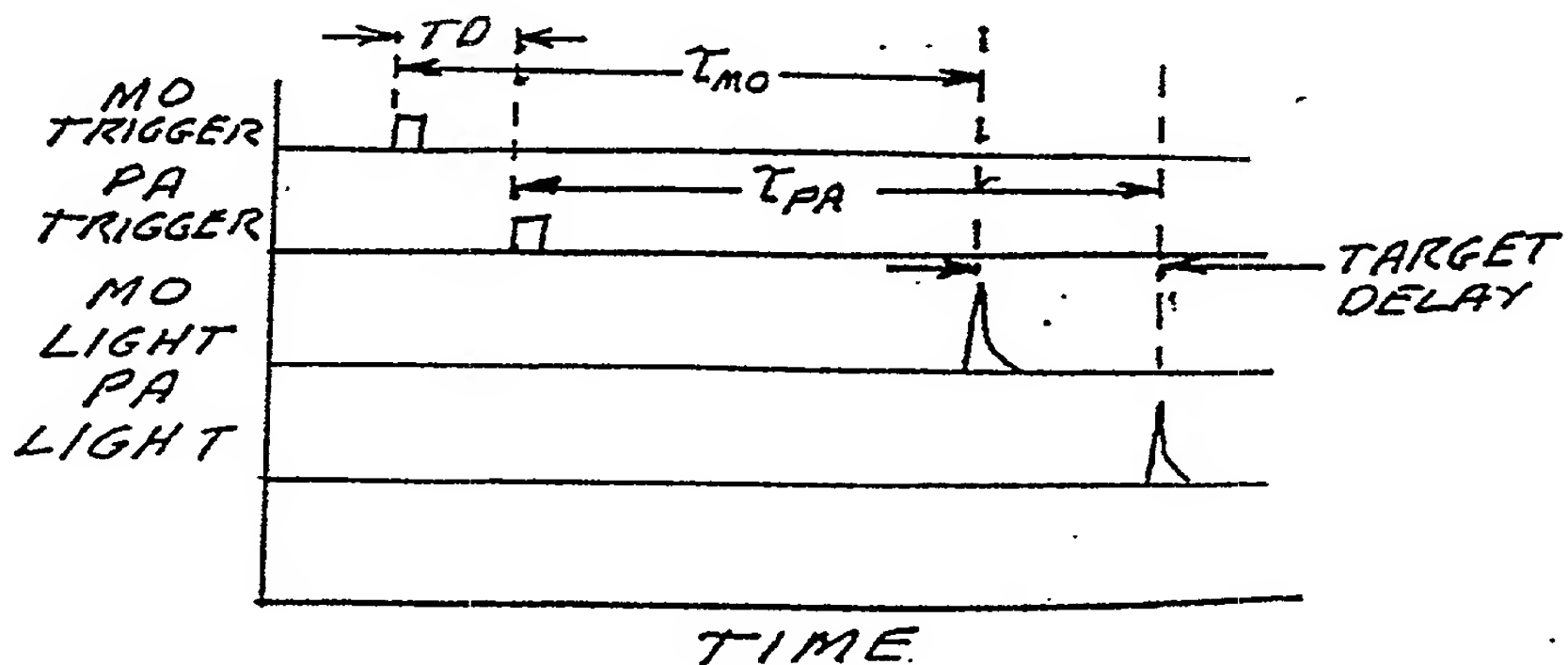


FIG. 4E1



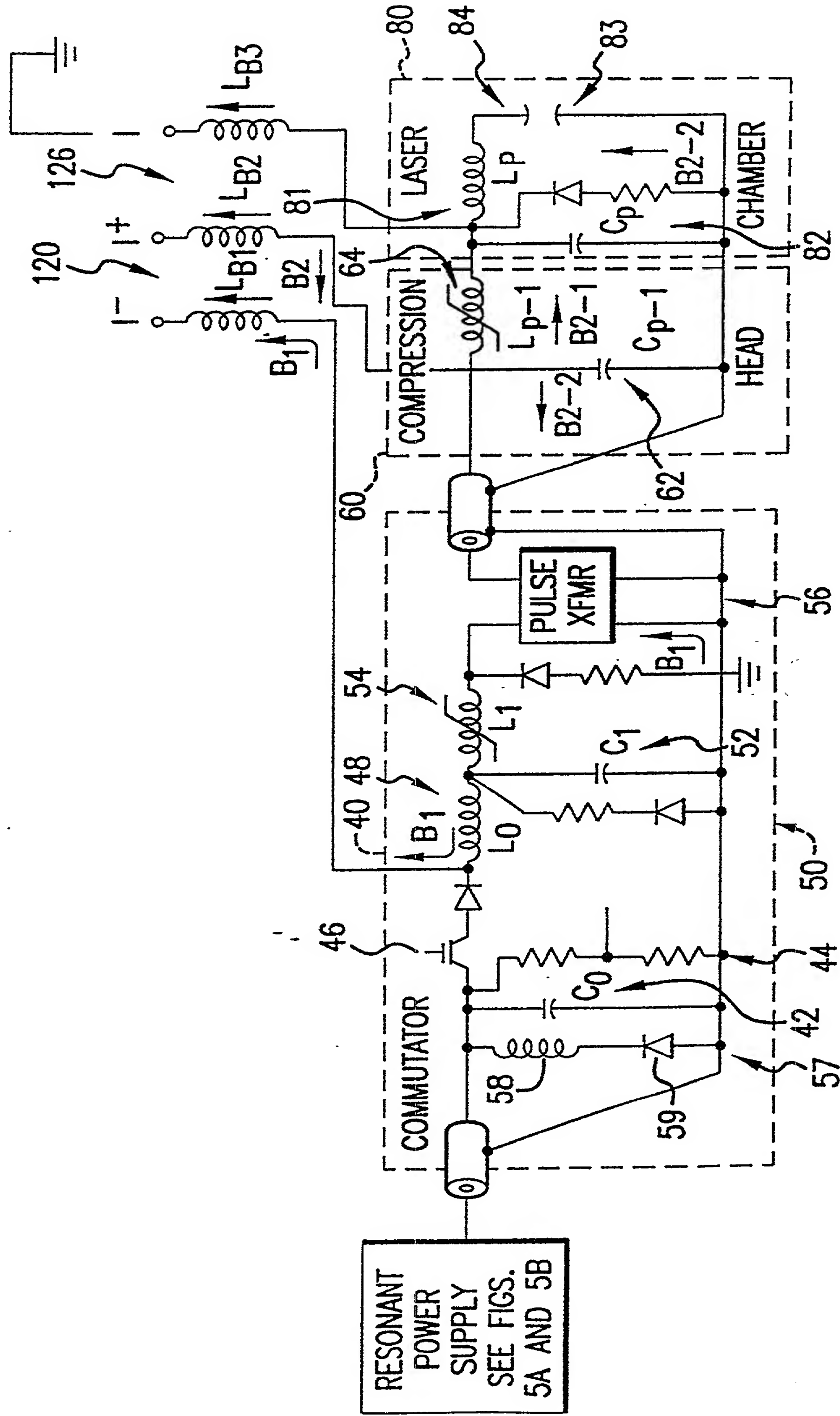


FIG. 5A

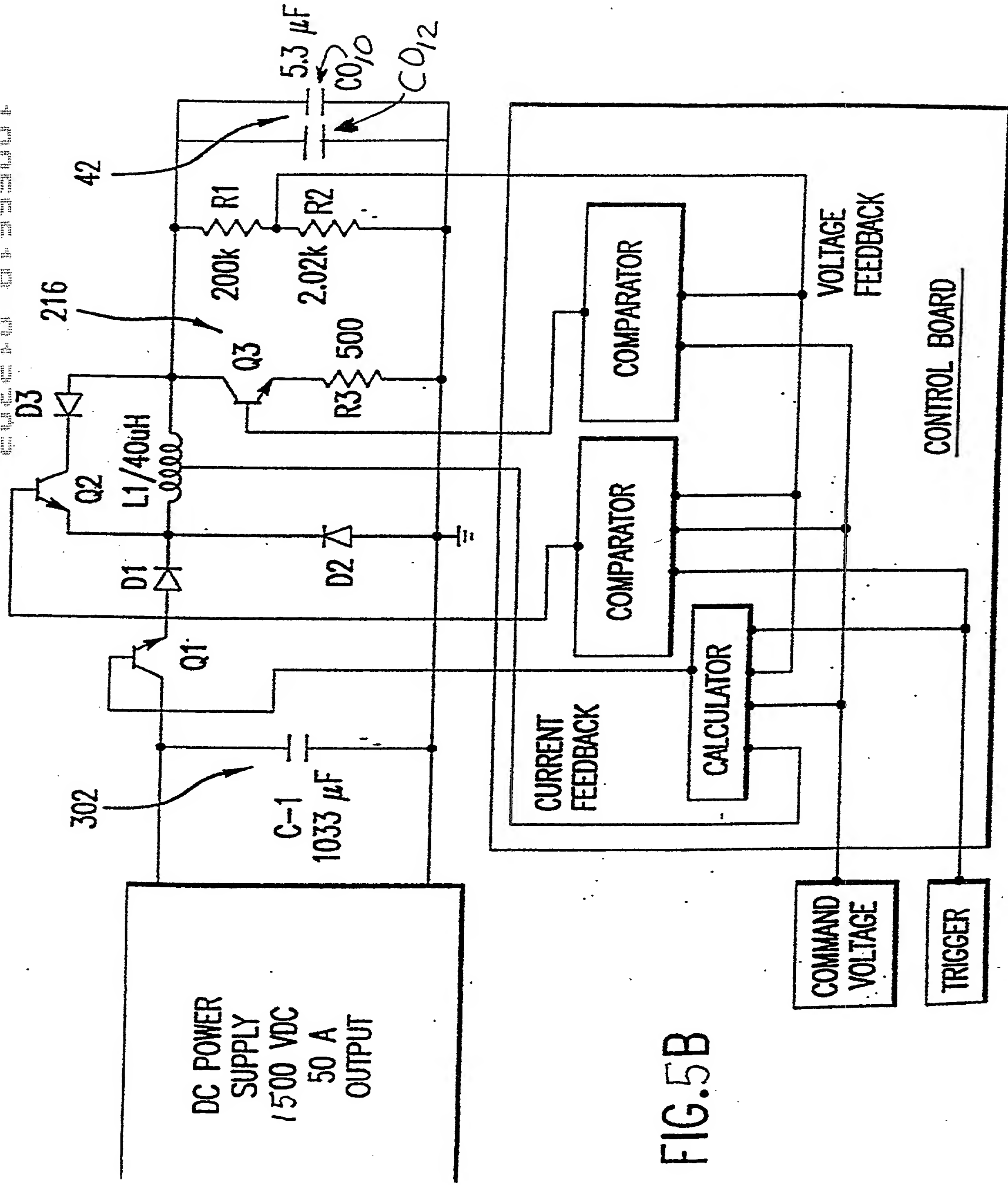
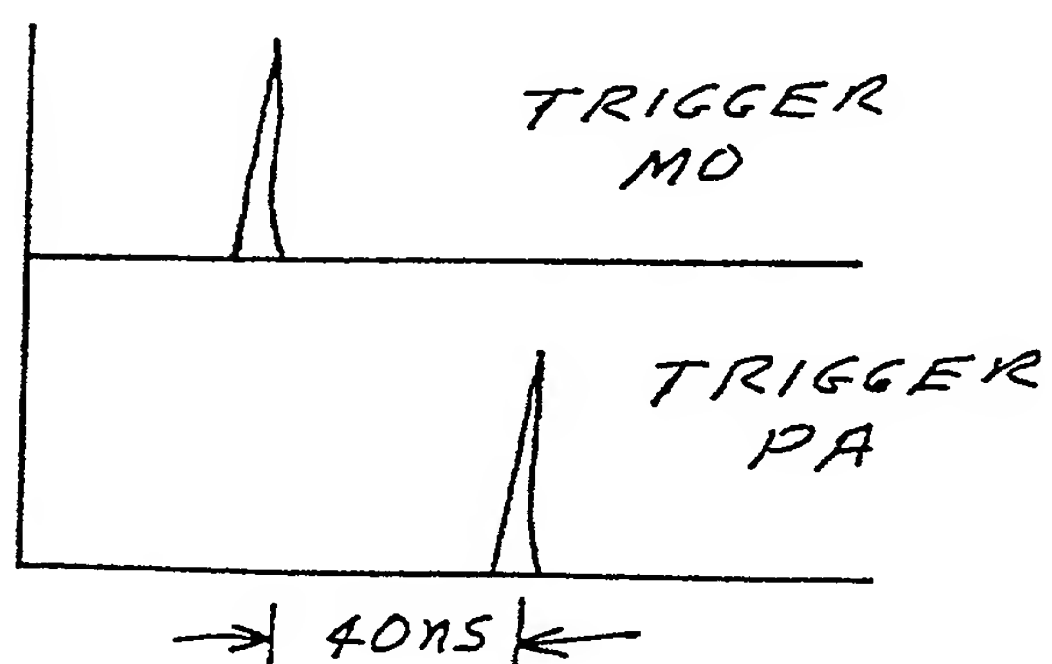
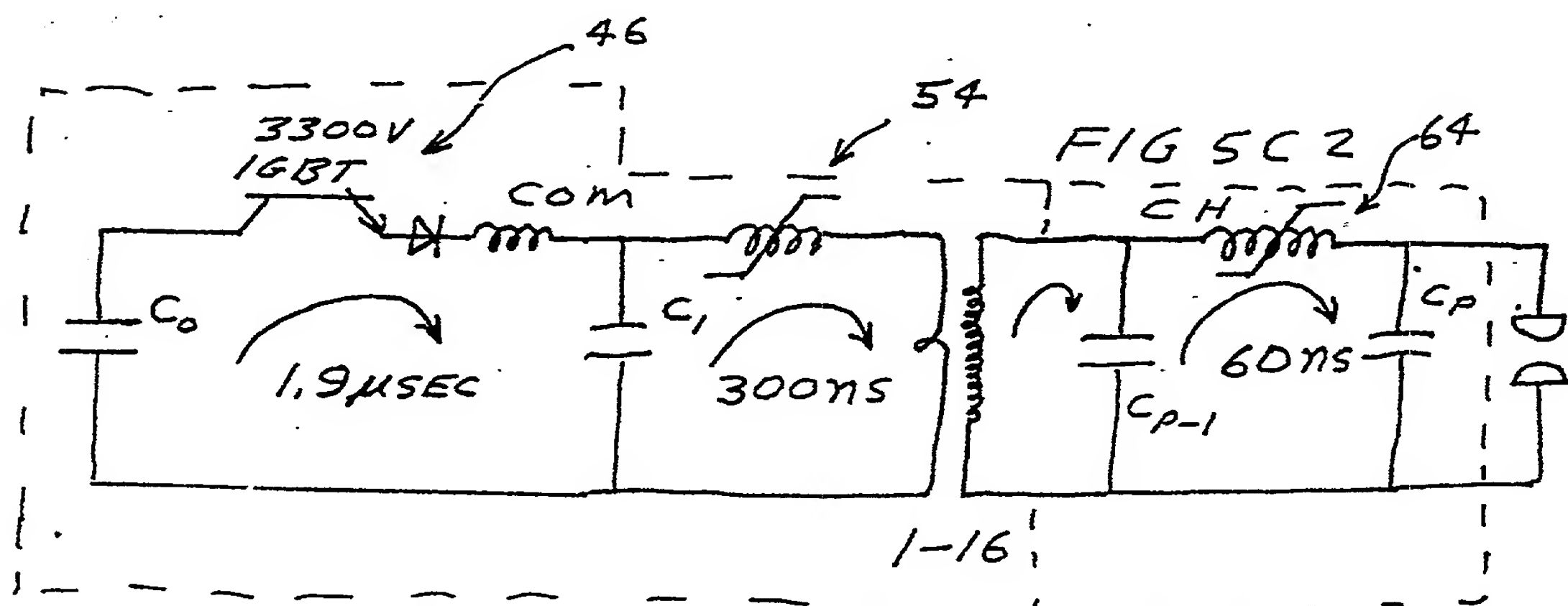
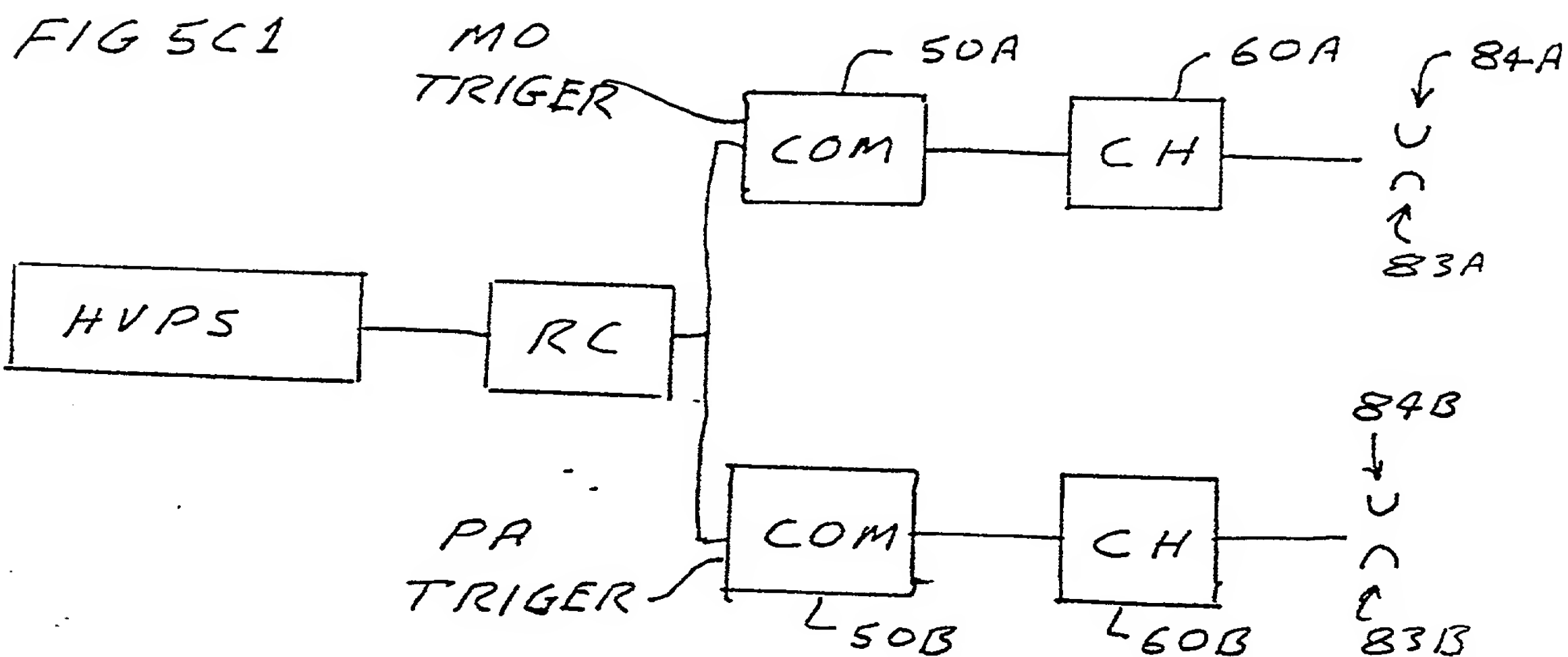
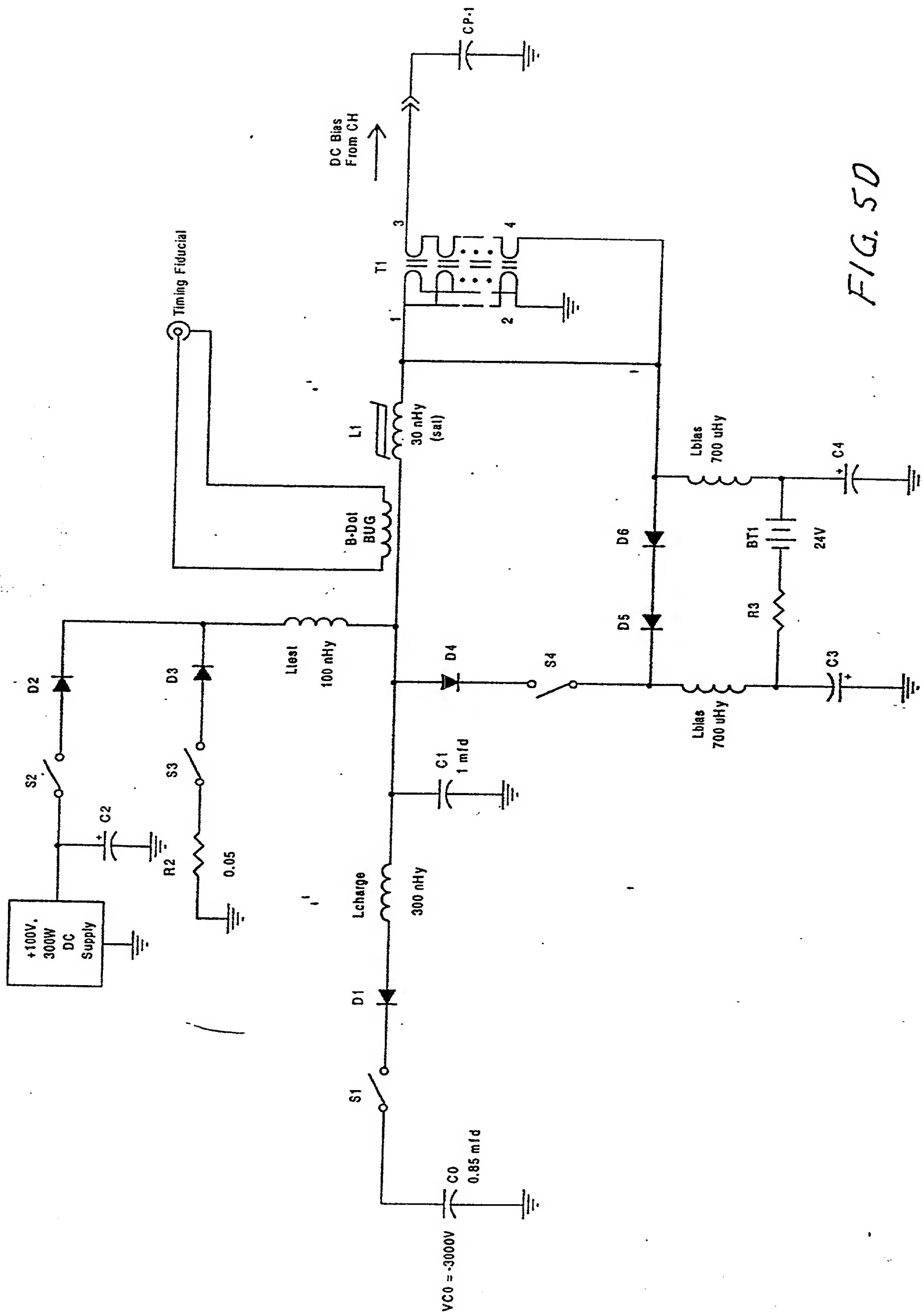


FIG. 5B

106649-04300



[illegible]



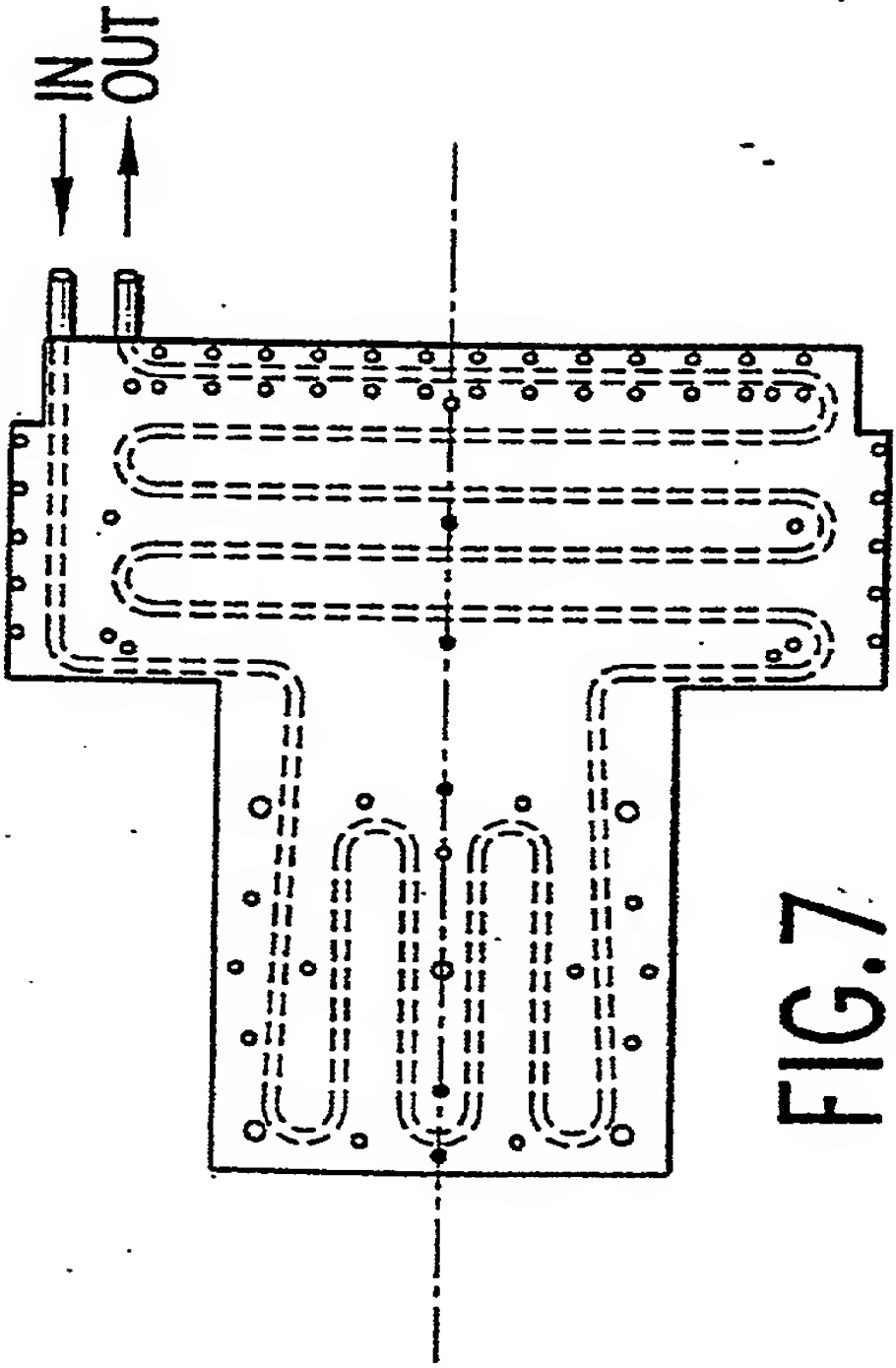


FIG. 7

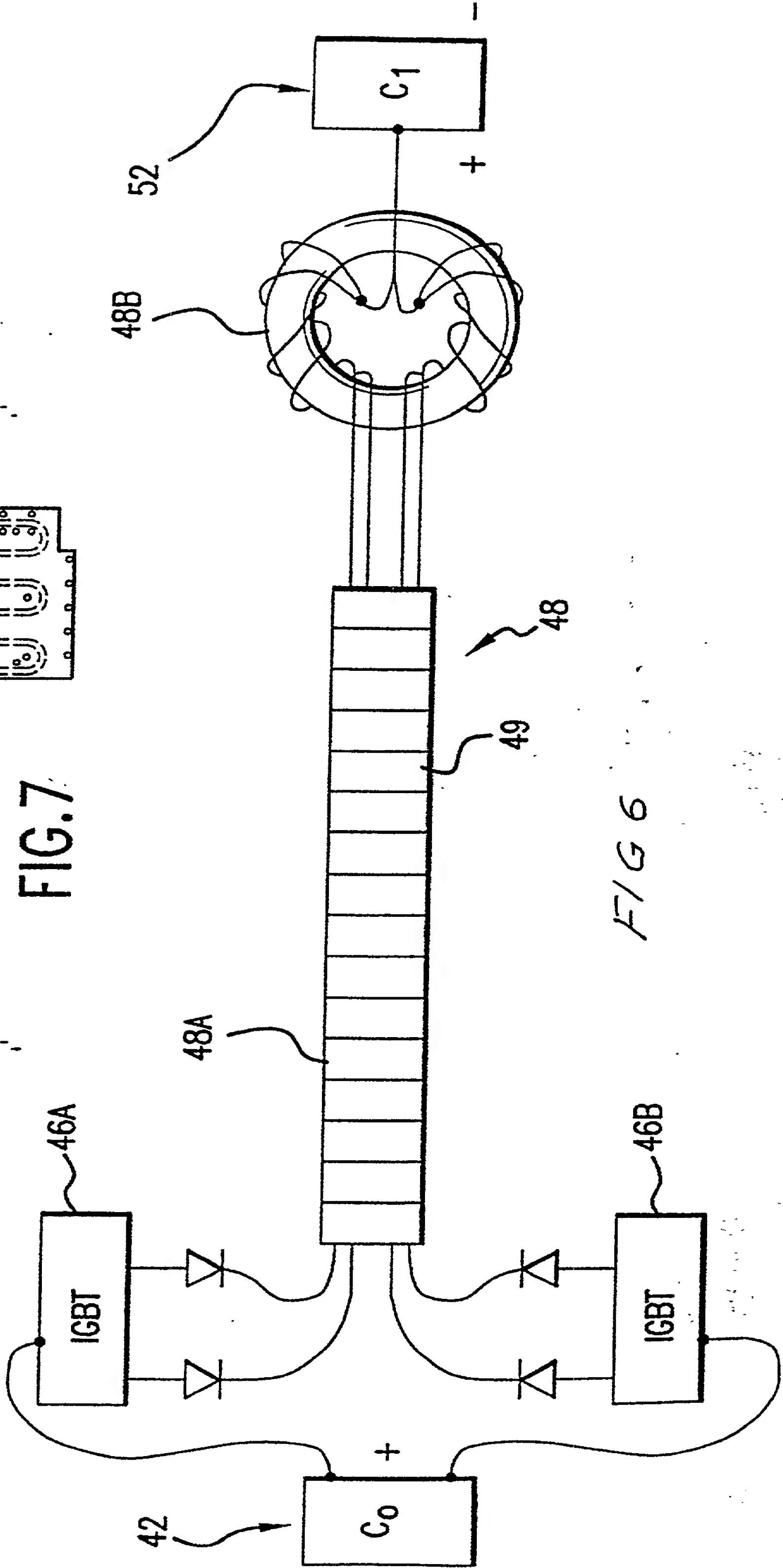


FIG 6

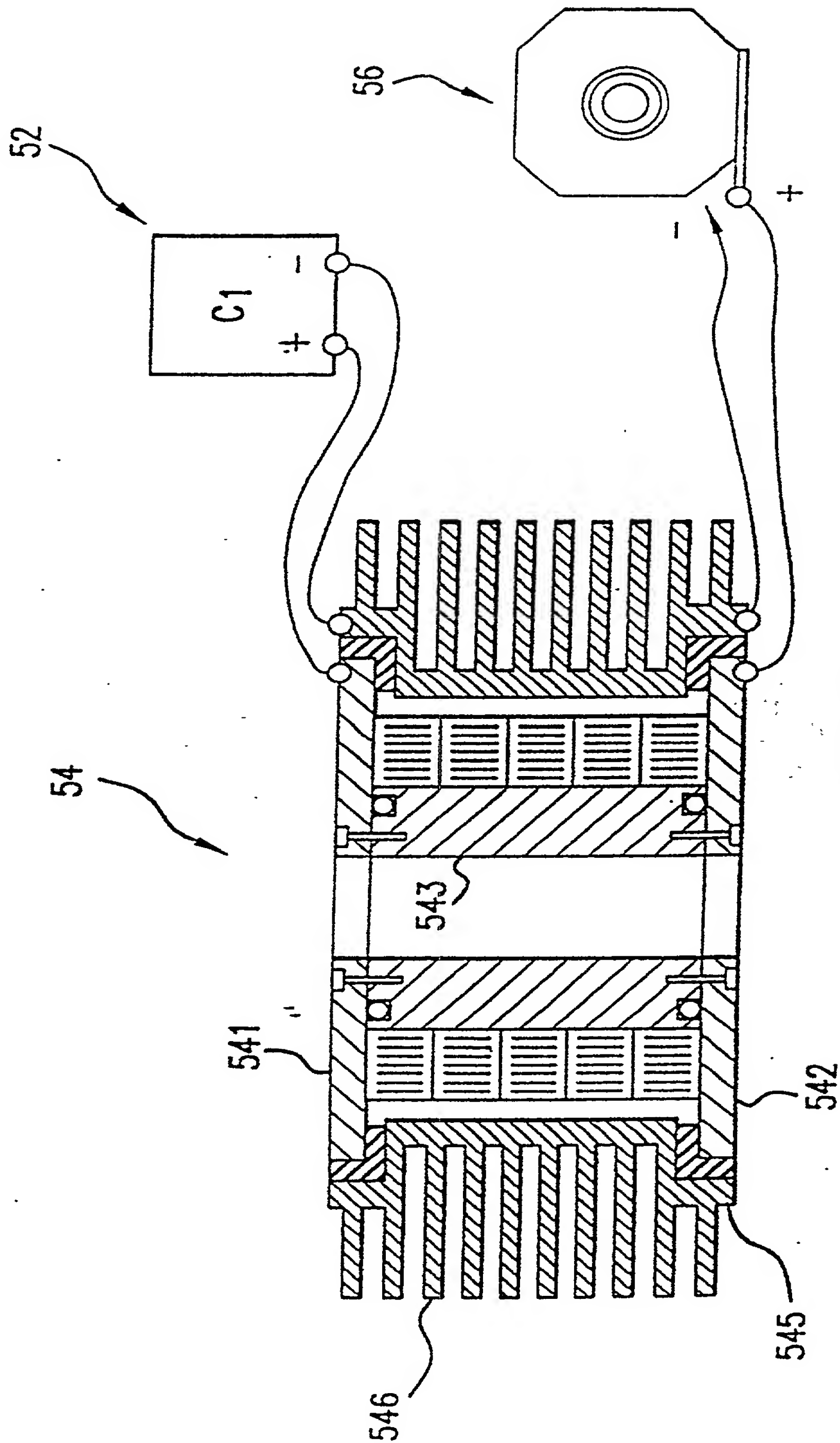


FIG. 8

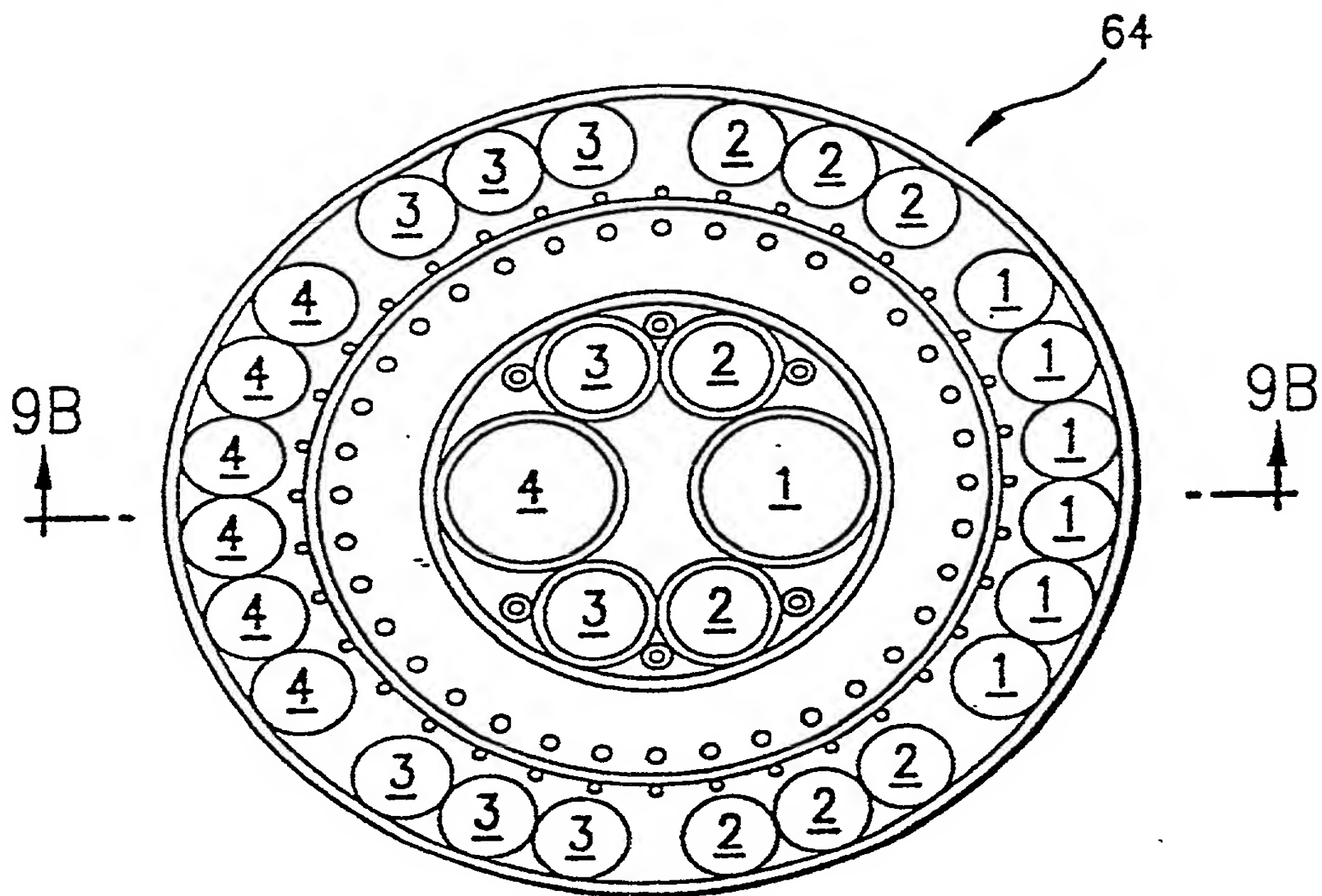


FIG. 9A

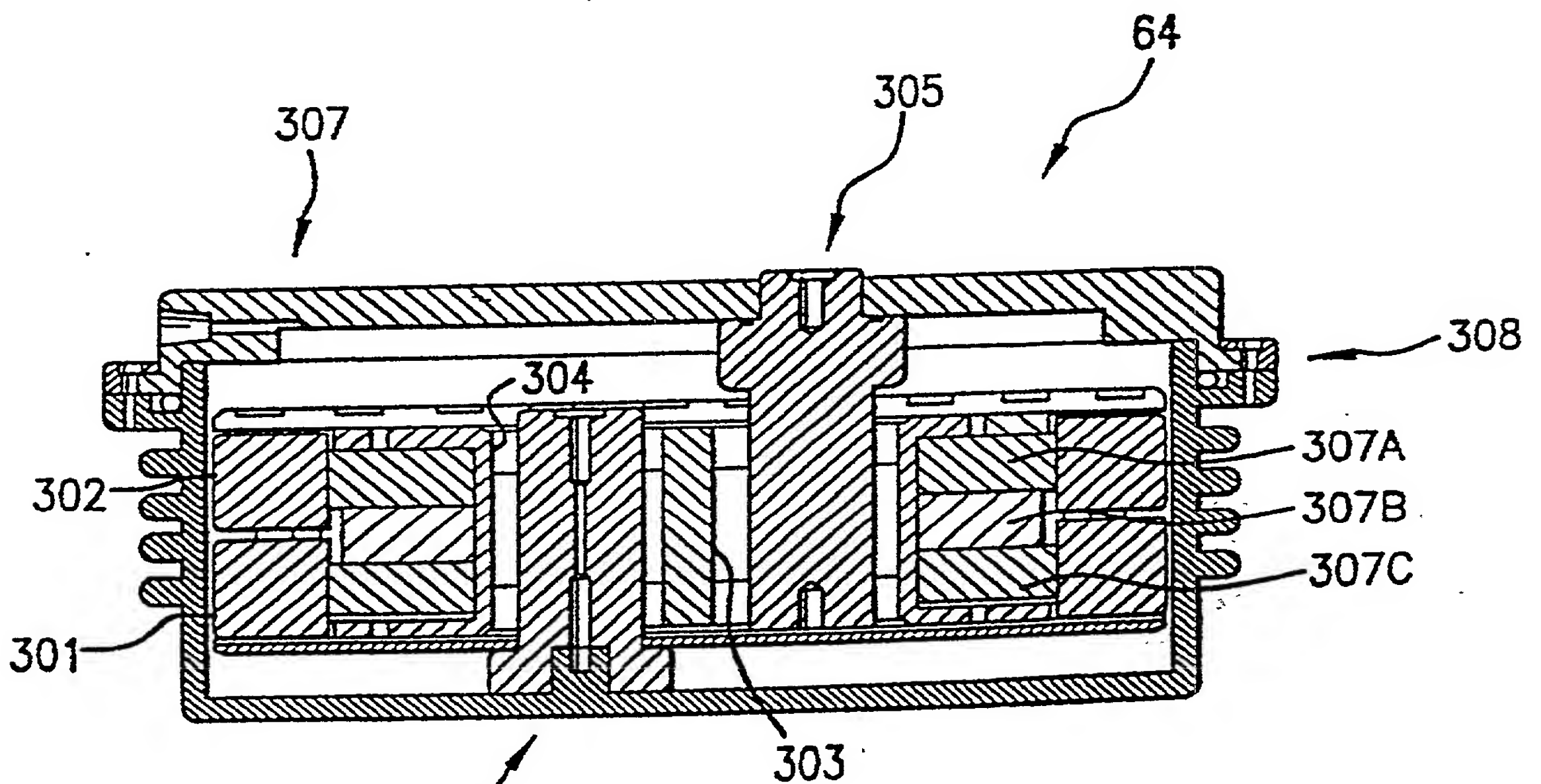


FIG. 9B

56A

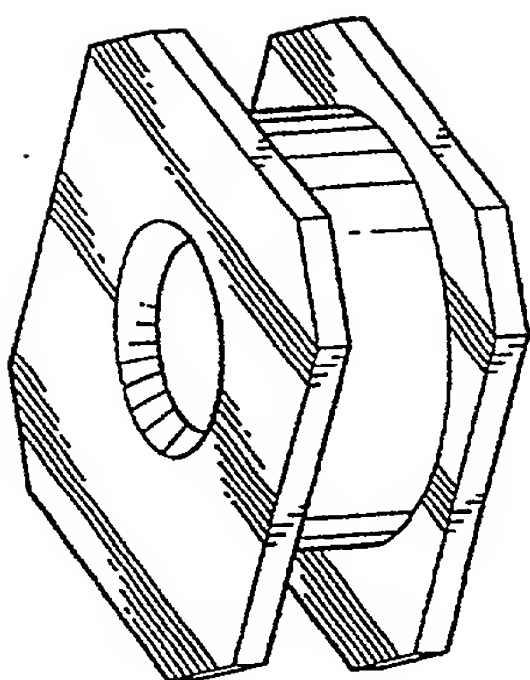


FIG. 10A

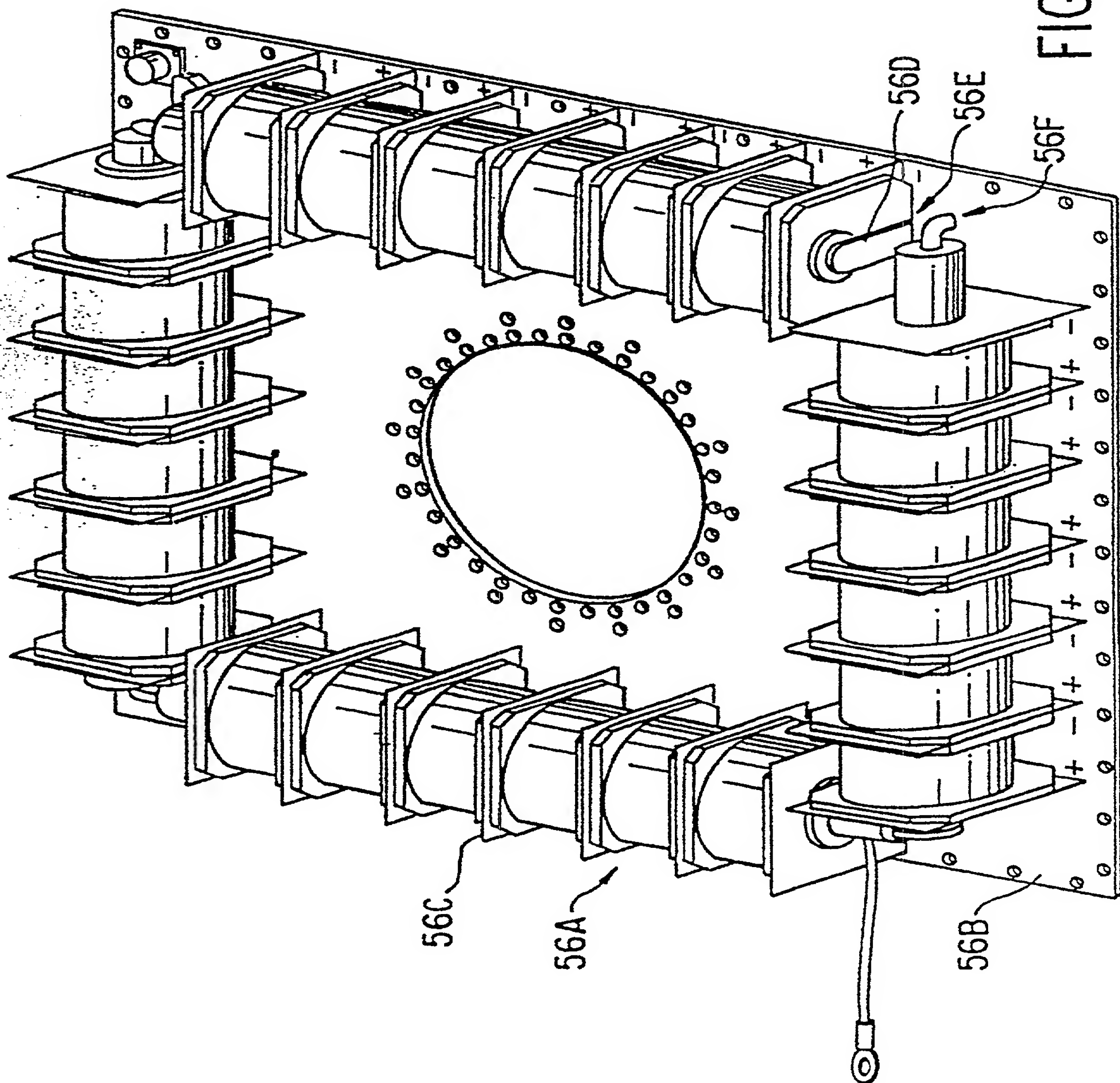


FIG. 10

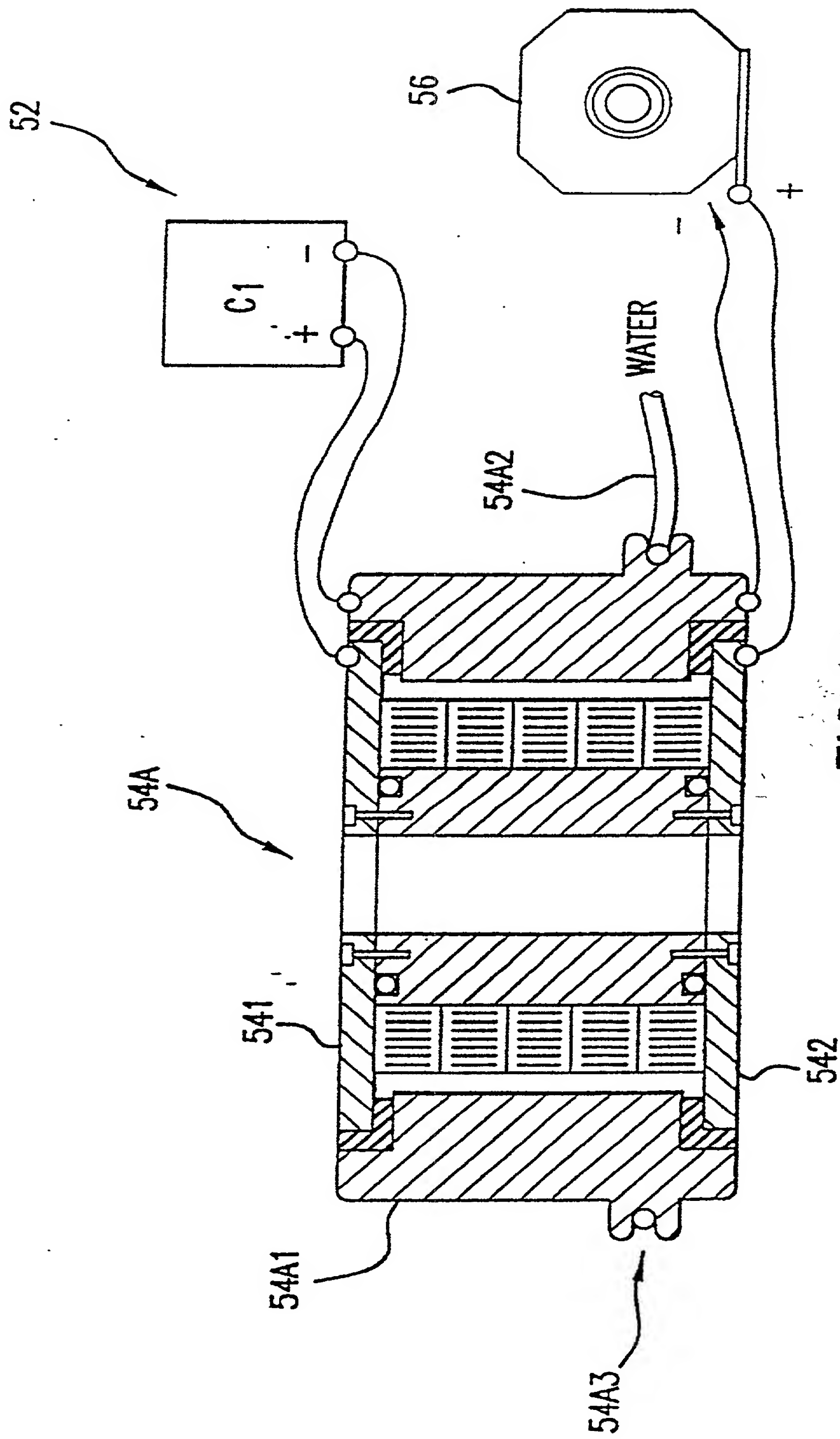
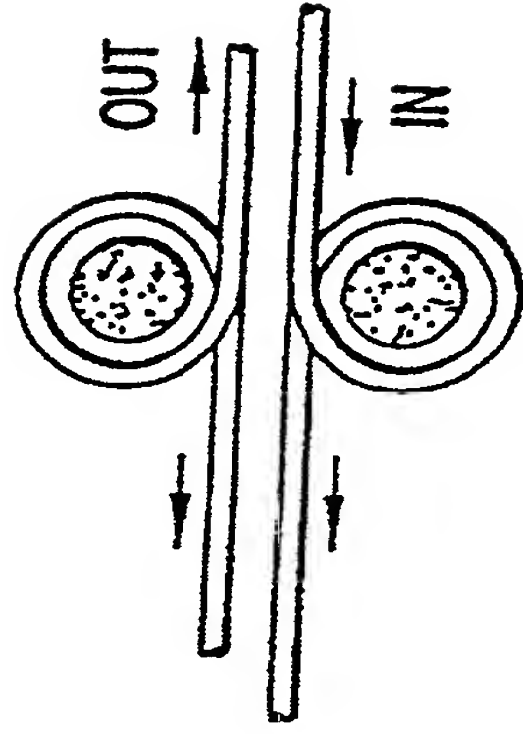
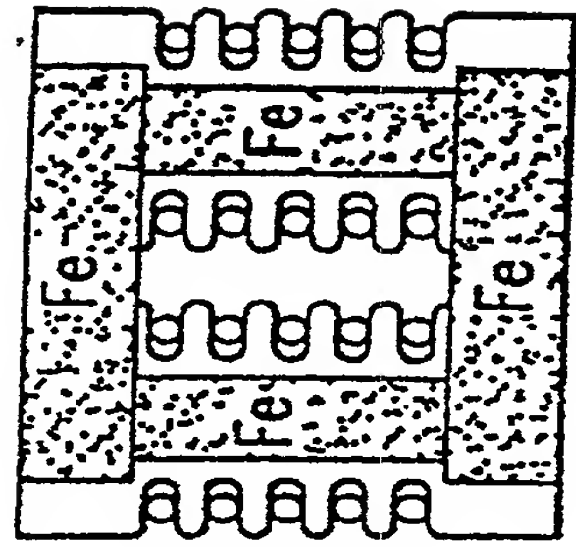
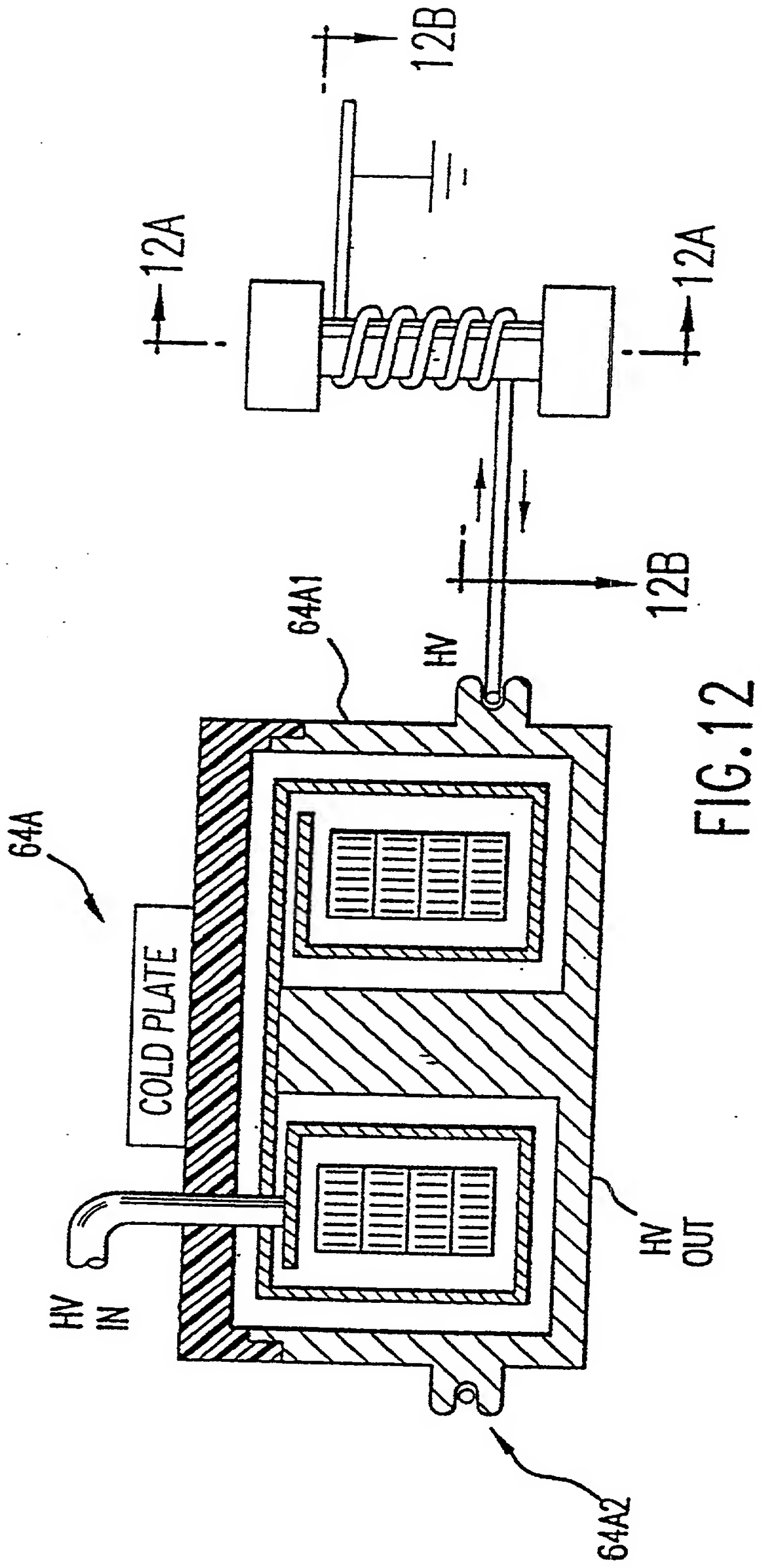


FIG.11



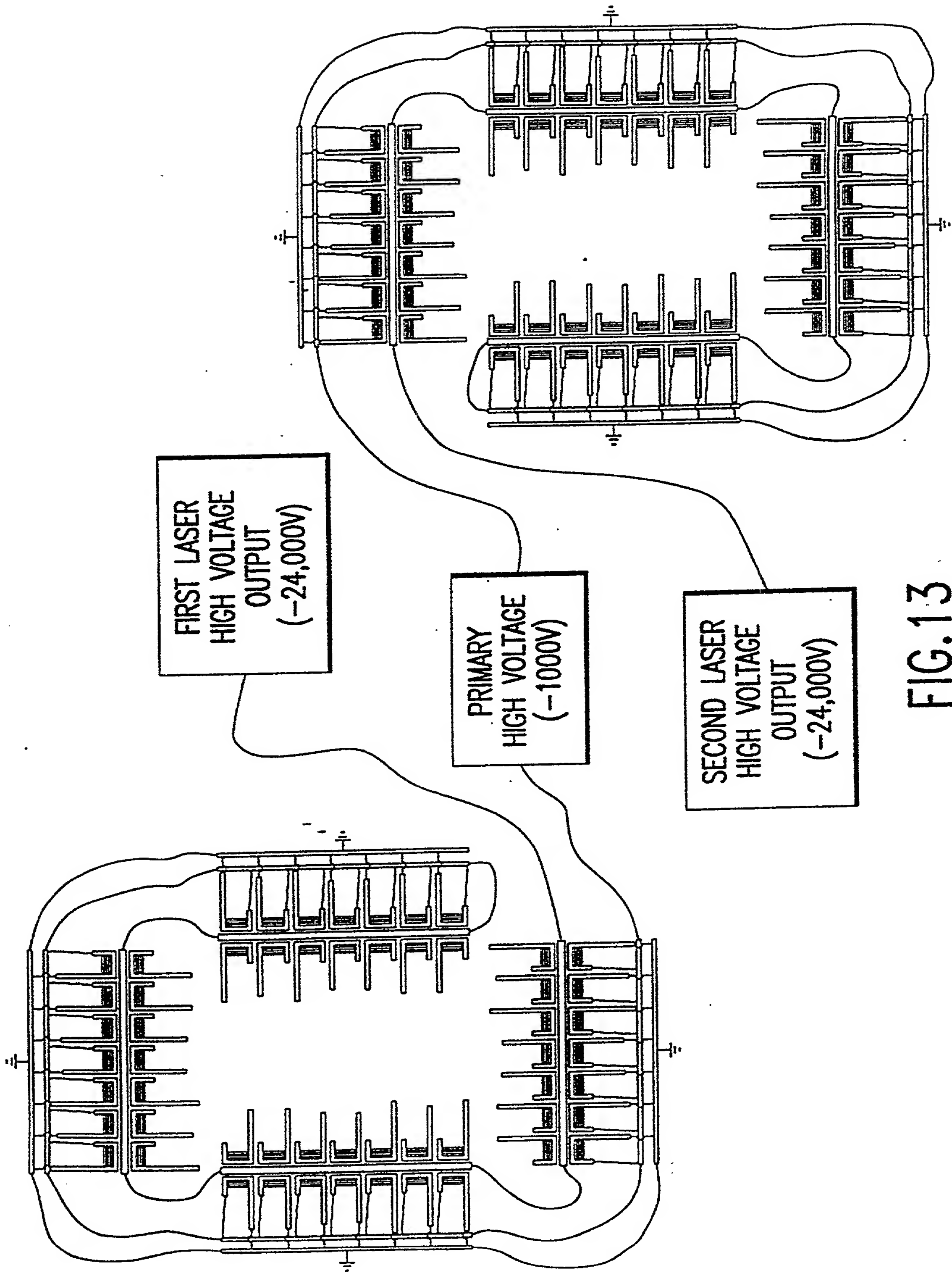
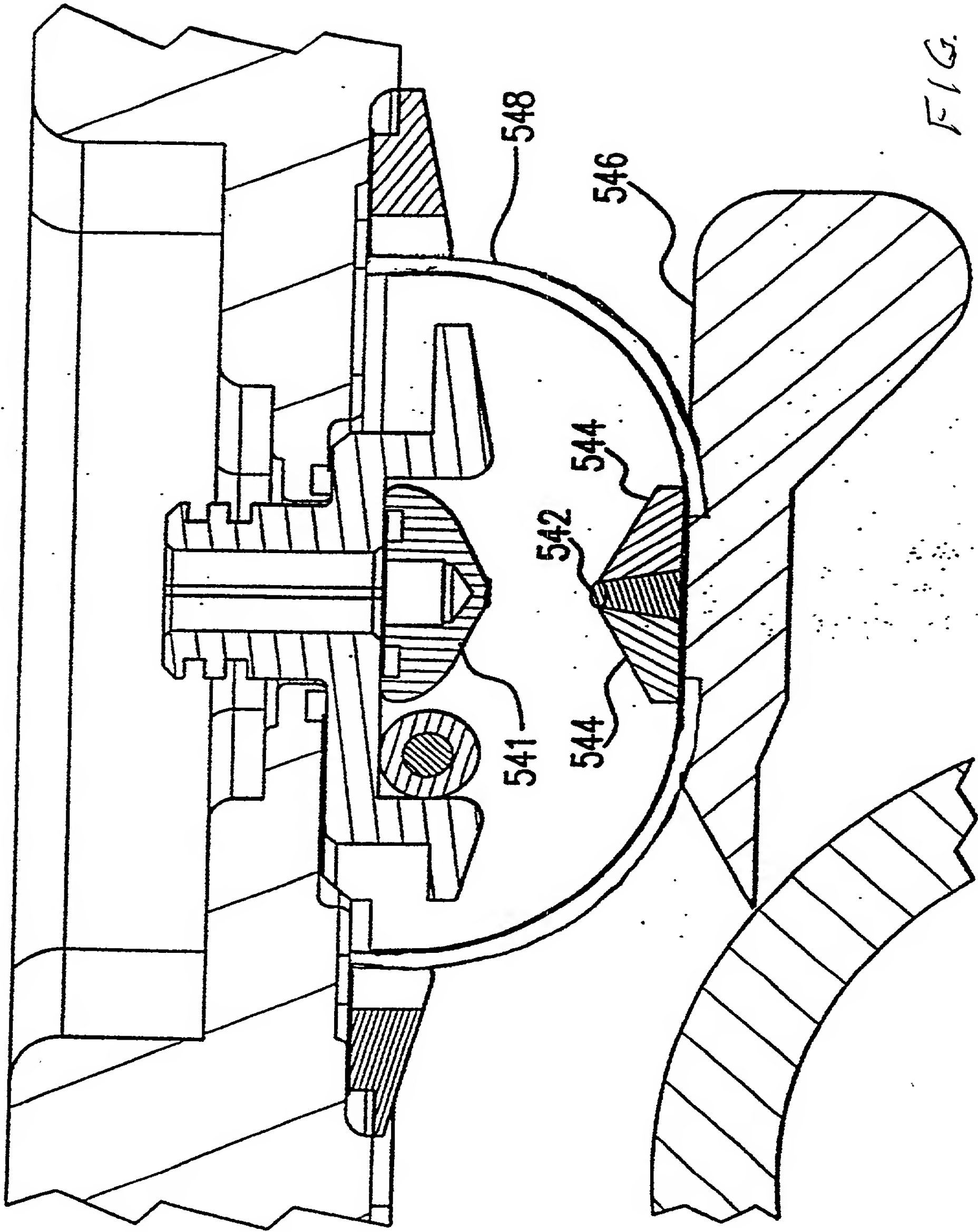


FIG.13







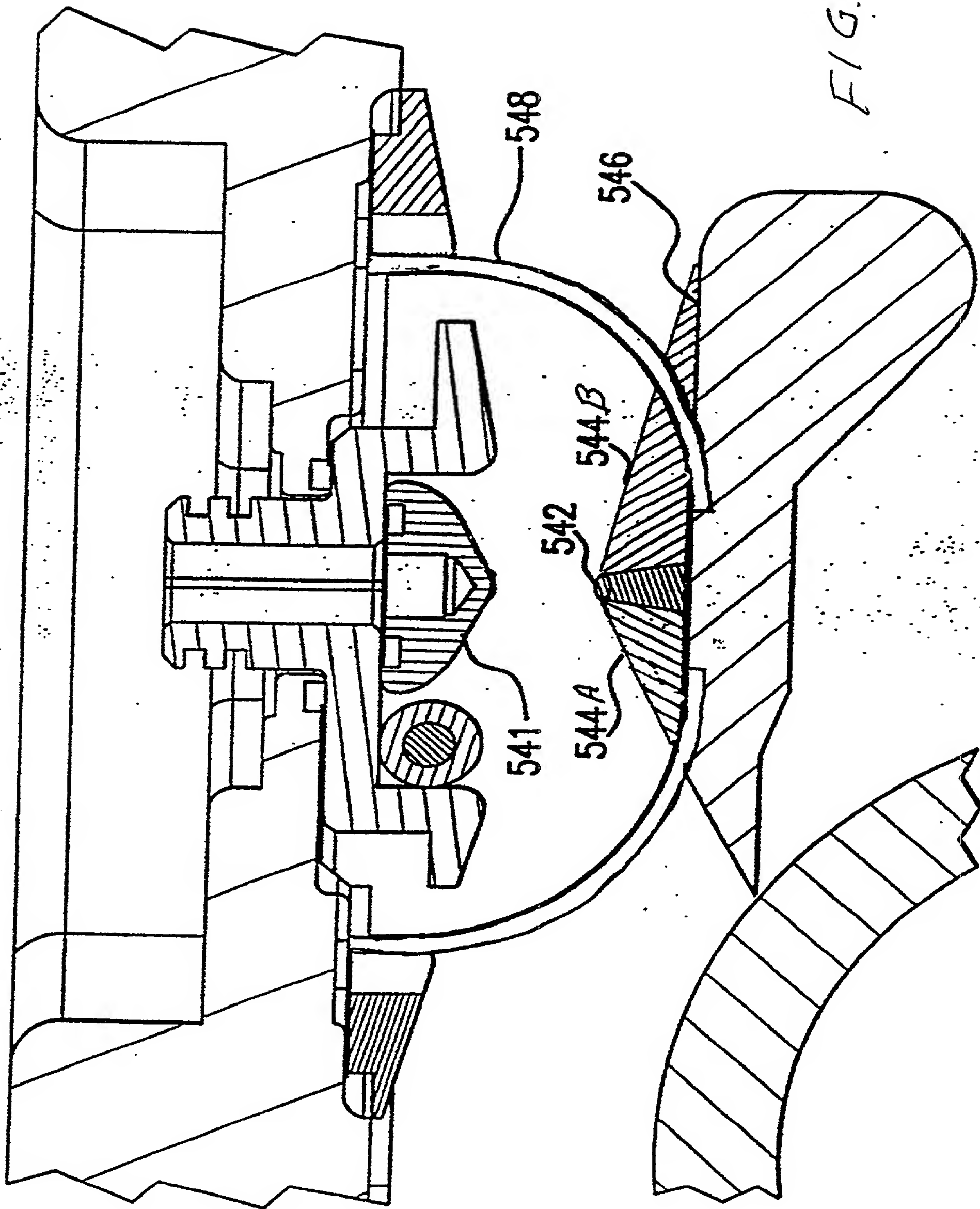


FIG. 15

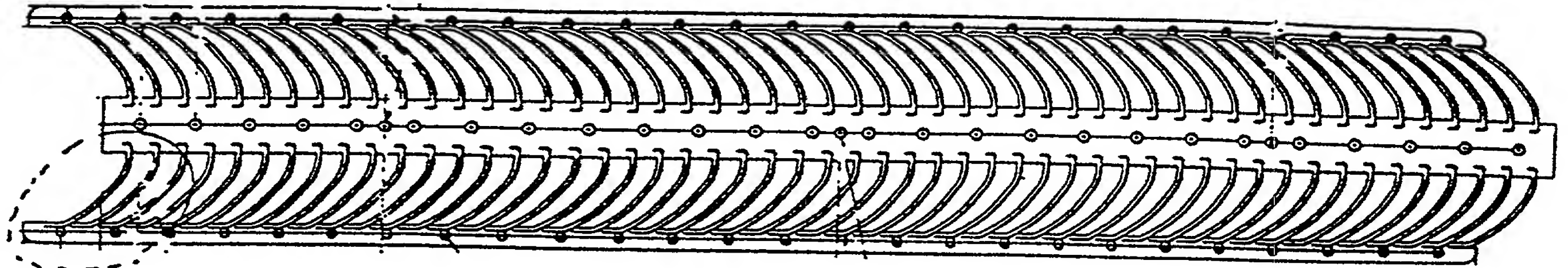


FIG. 13A(1)

FIG. 13A( )

B

FIG. 13A( )

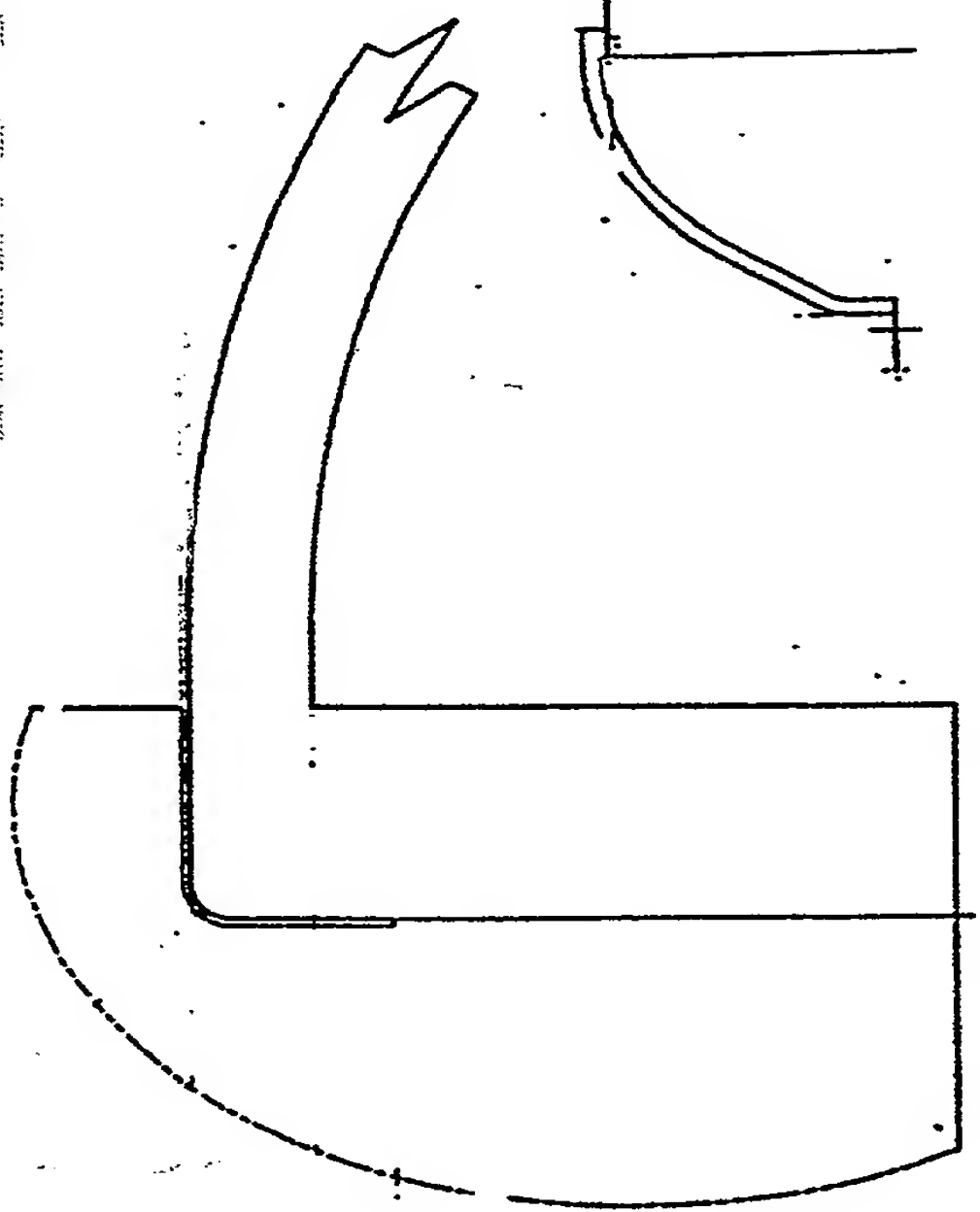
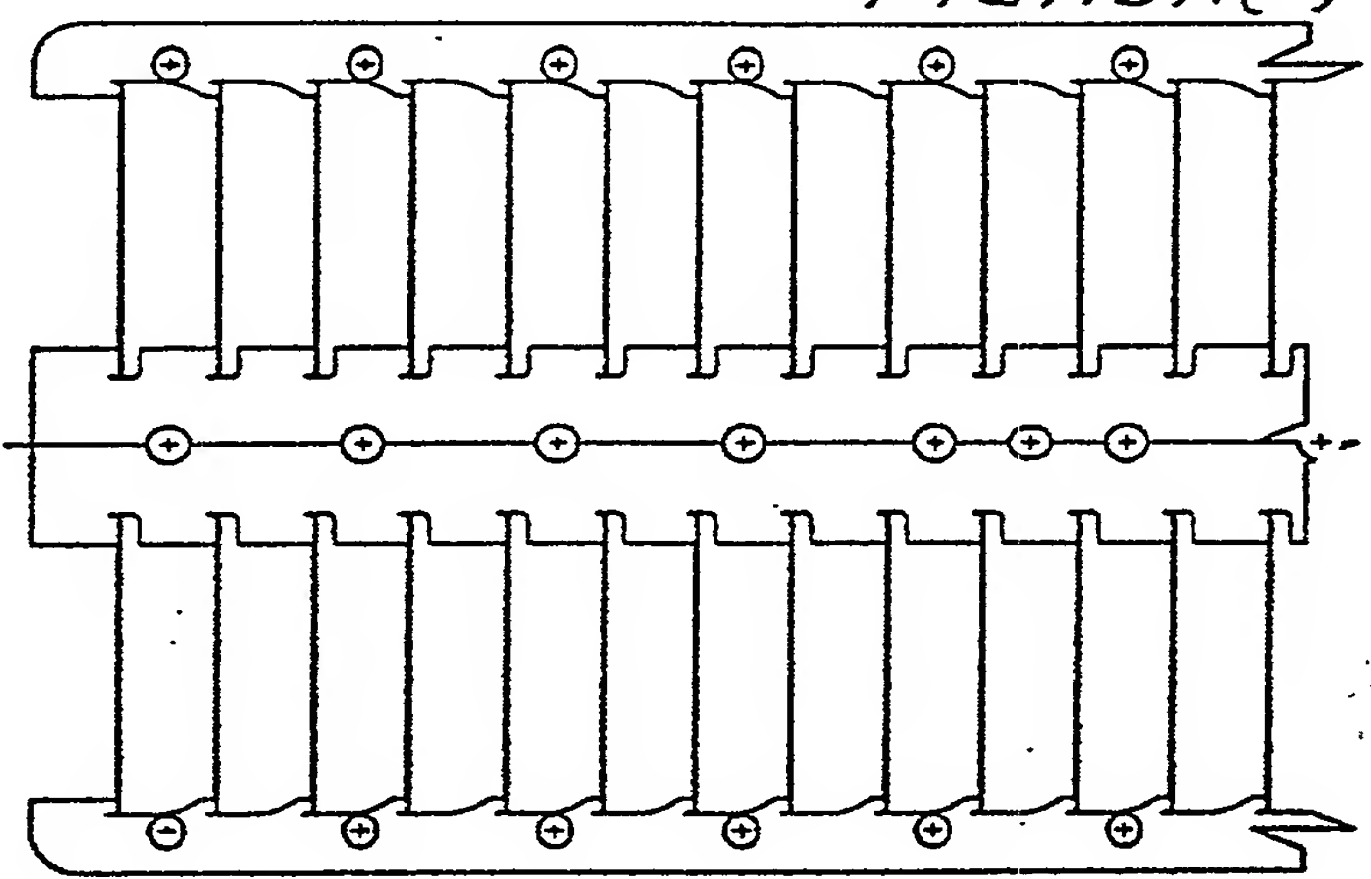
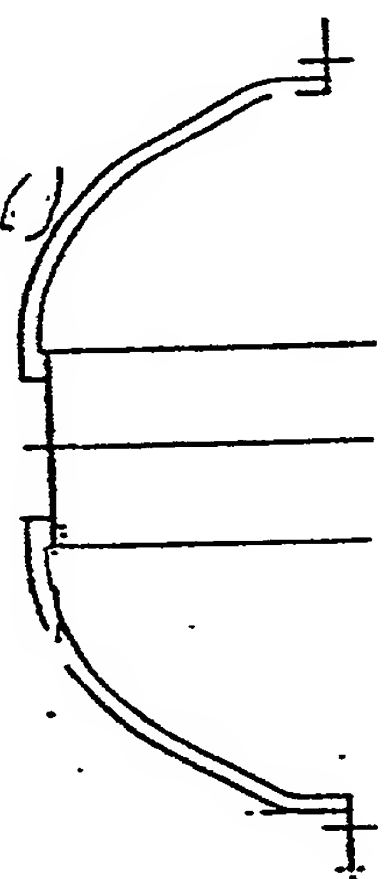


FIG. 13A(3)

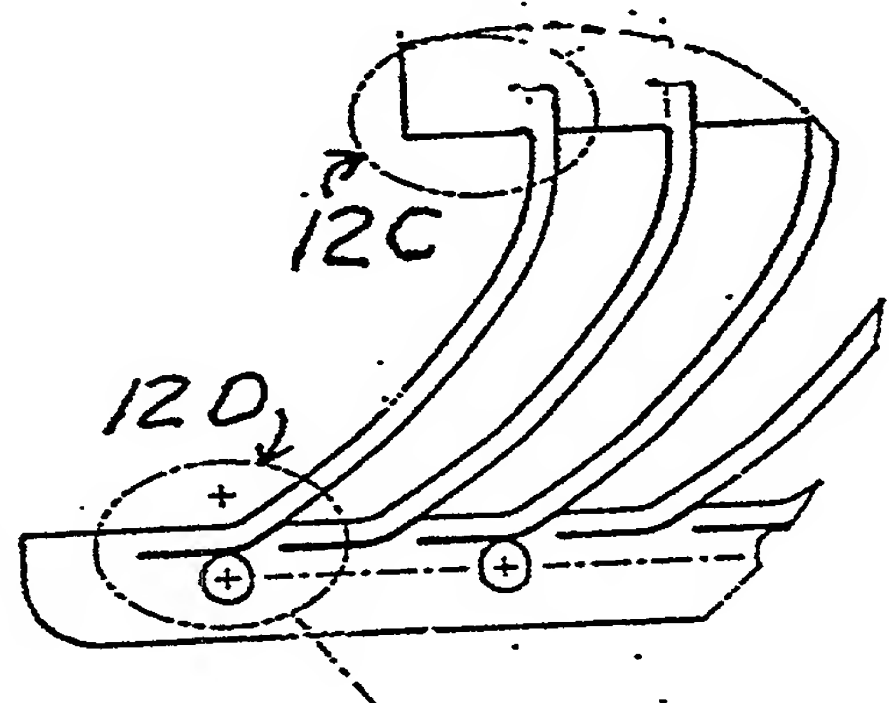


FIG. 13A2

FIG. 13A( )

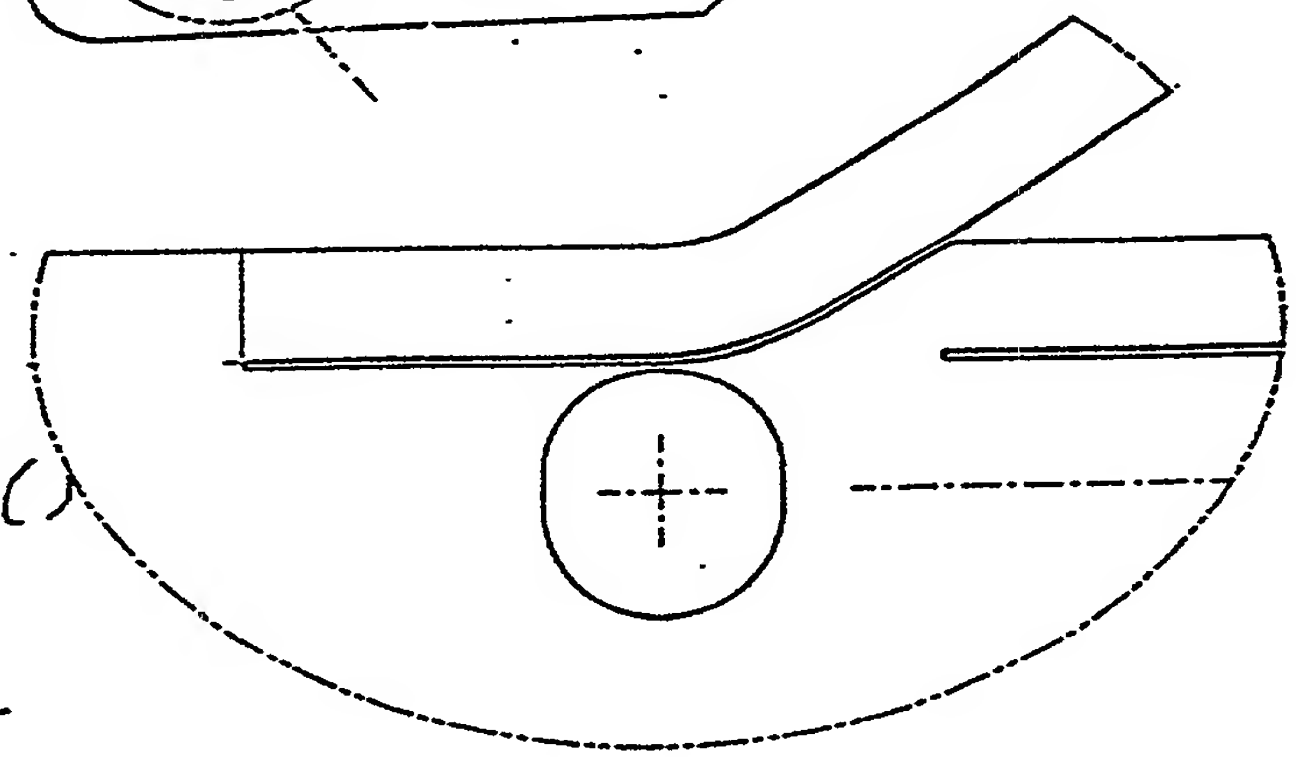




FIG. 16E

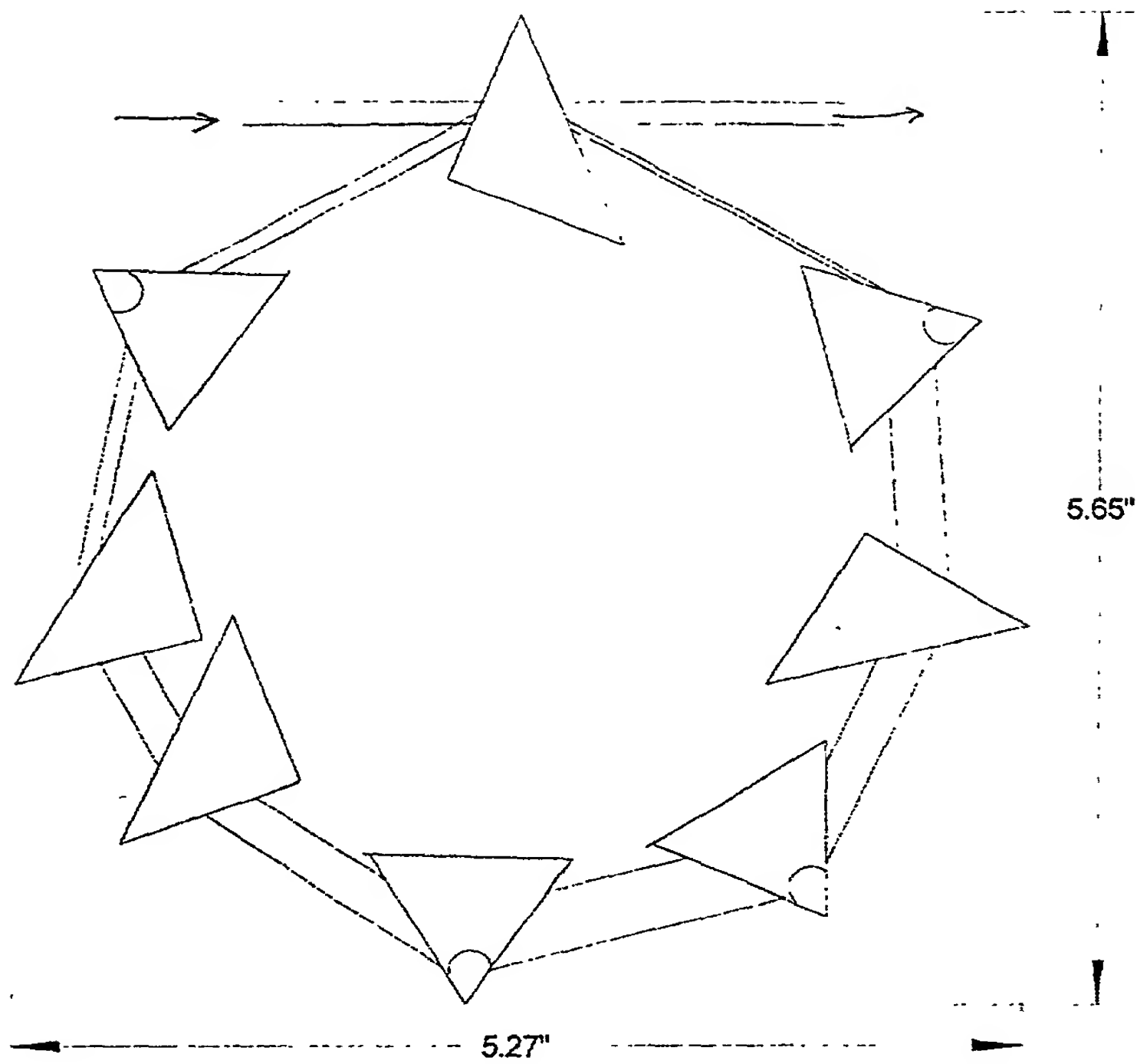


FIG 16E

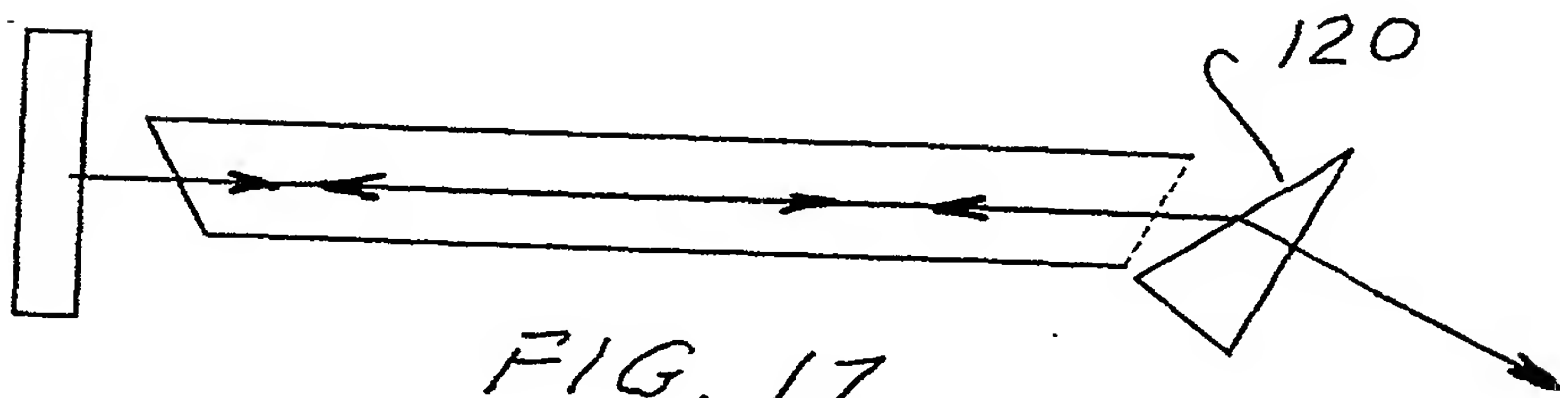


FIG. 17

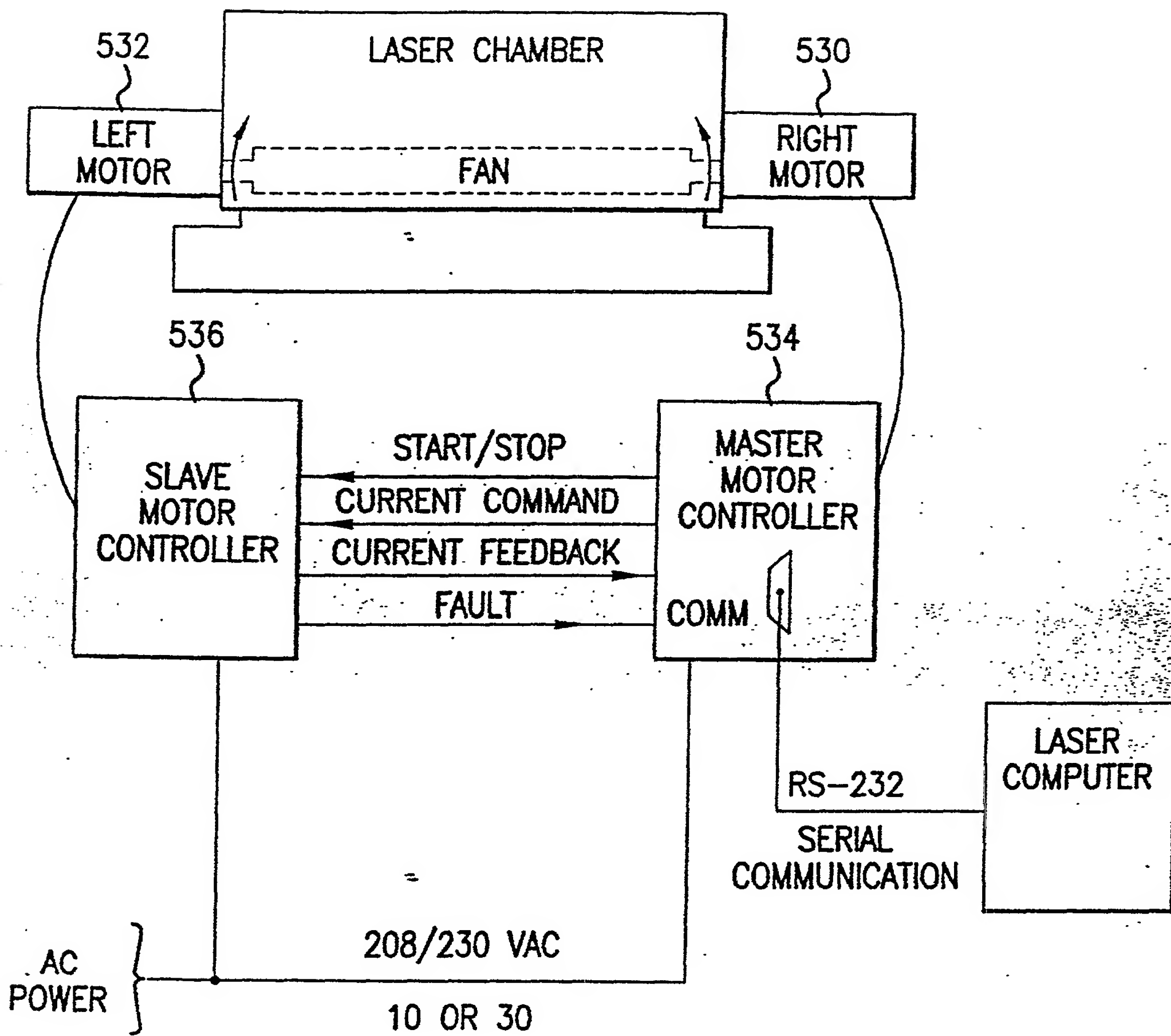


FIG. 18

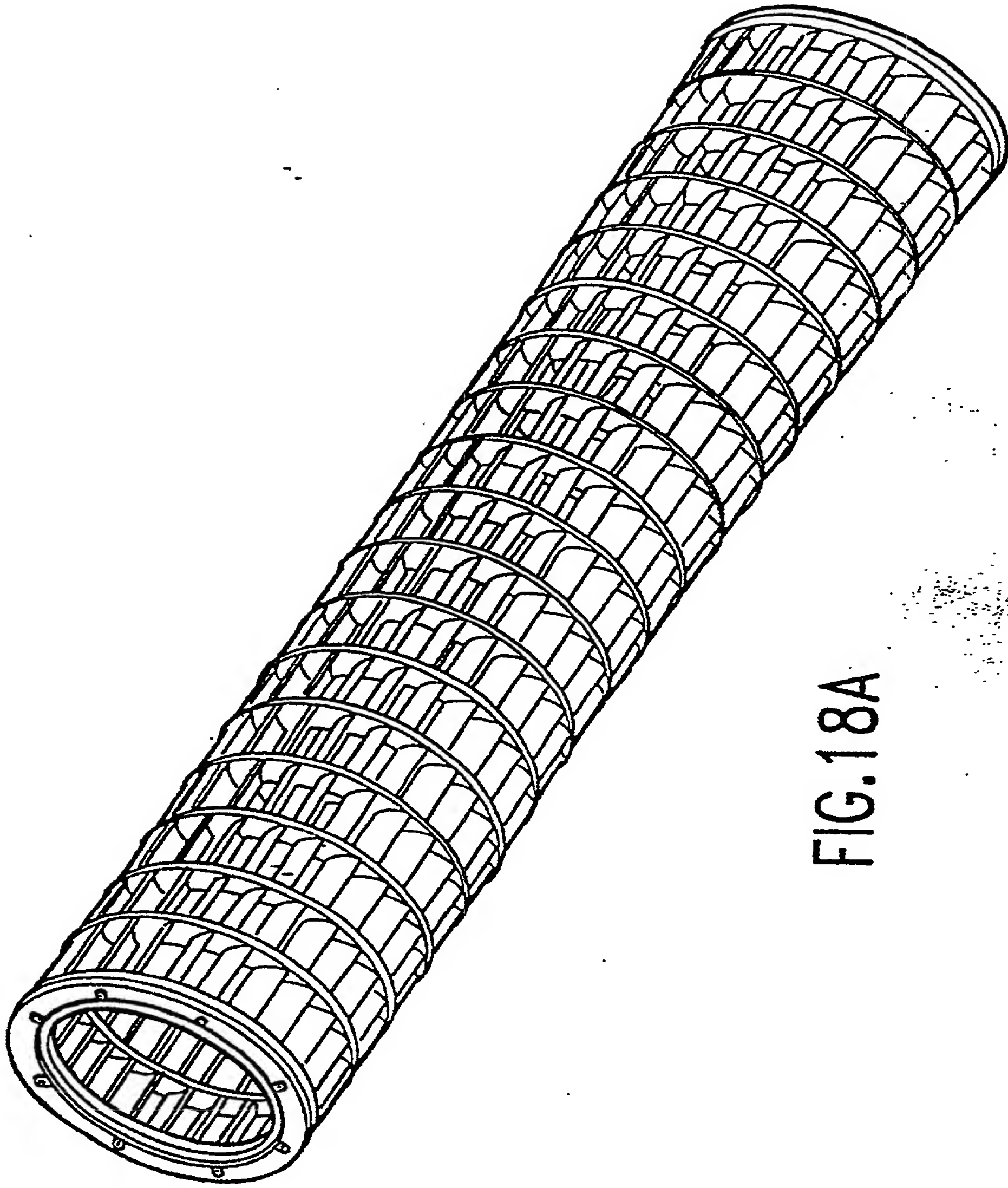


FIG.18A

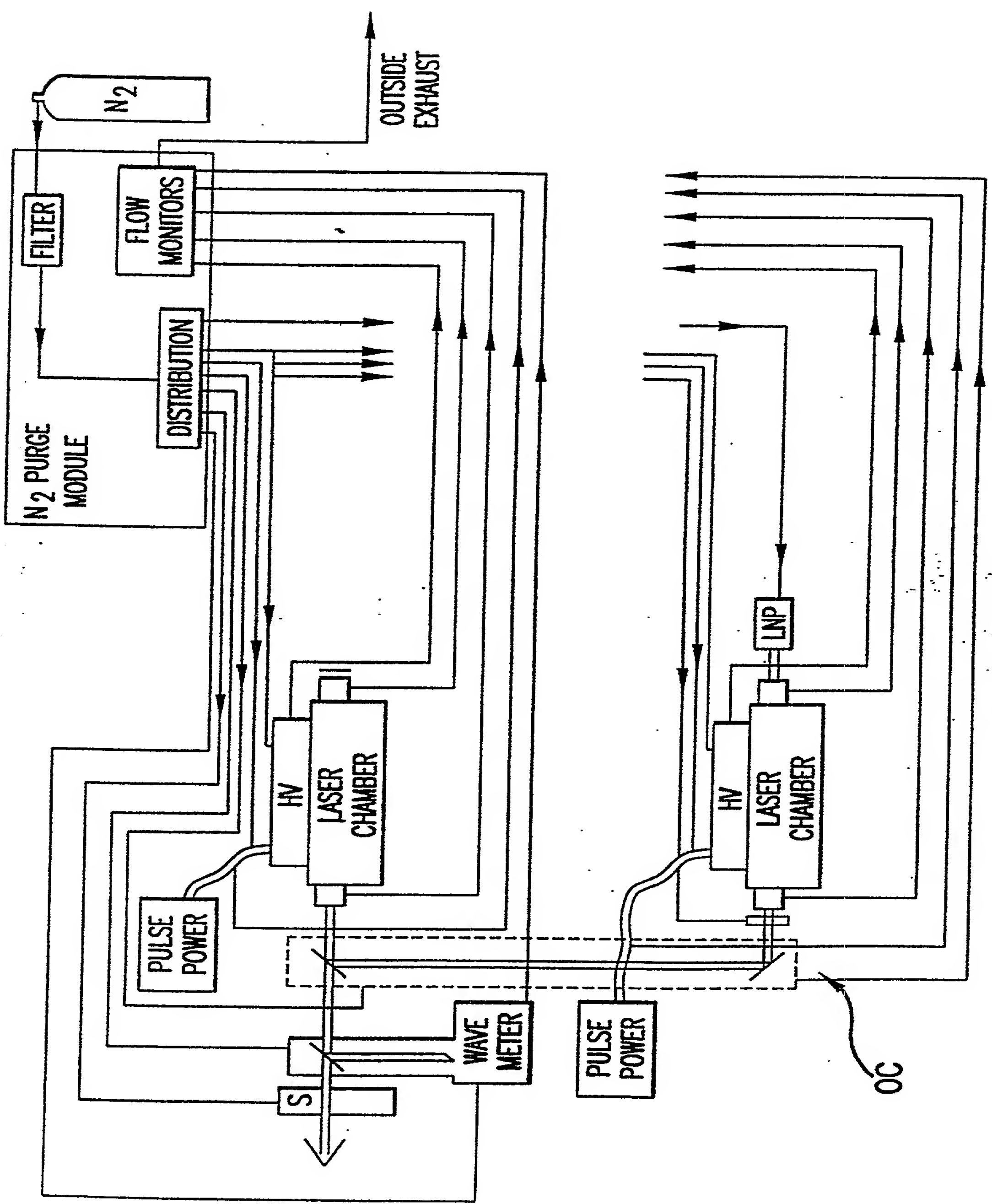


FIG. 19

40064-0400

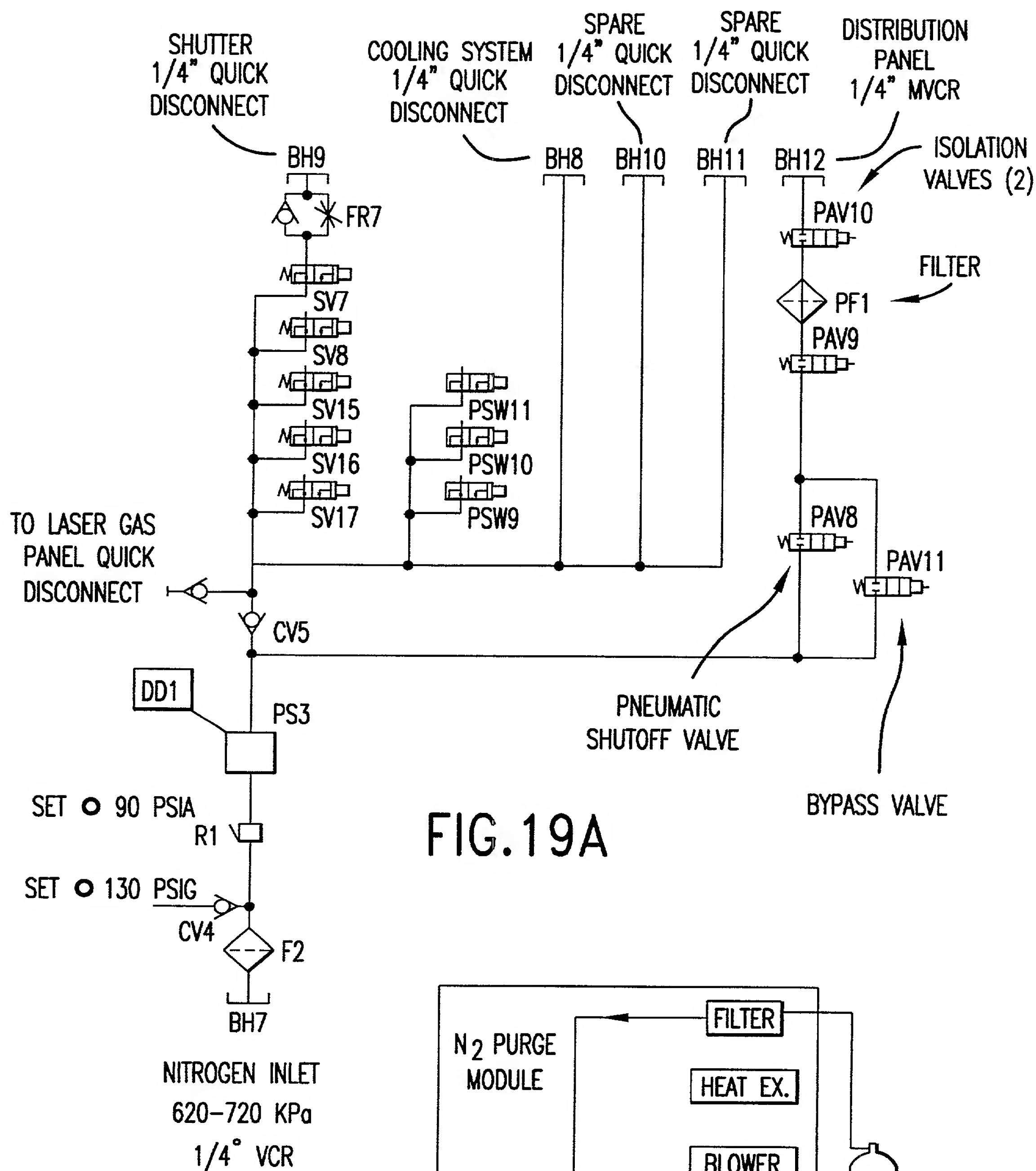


FIG.19A

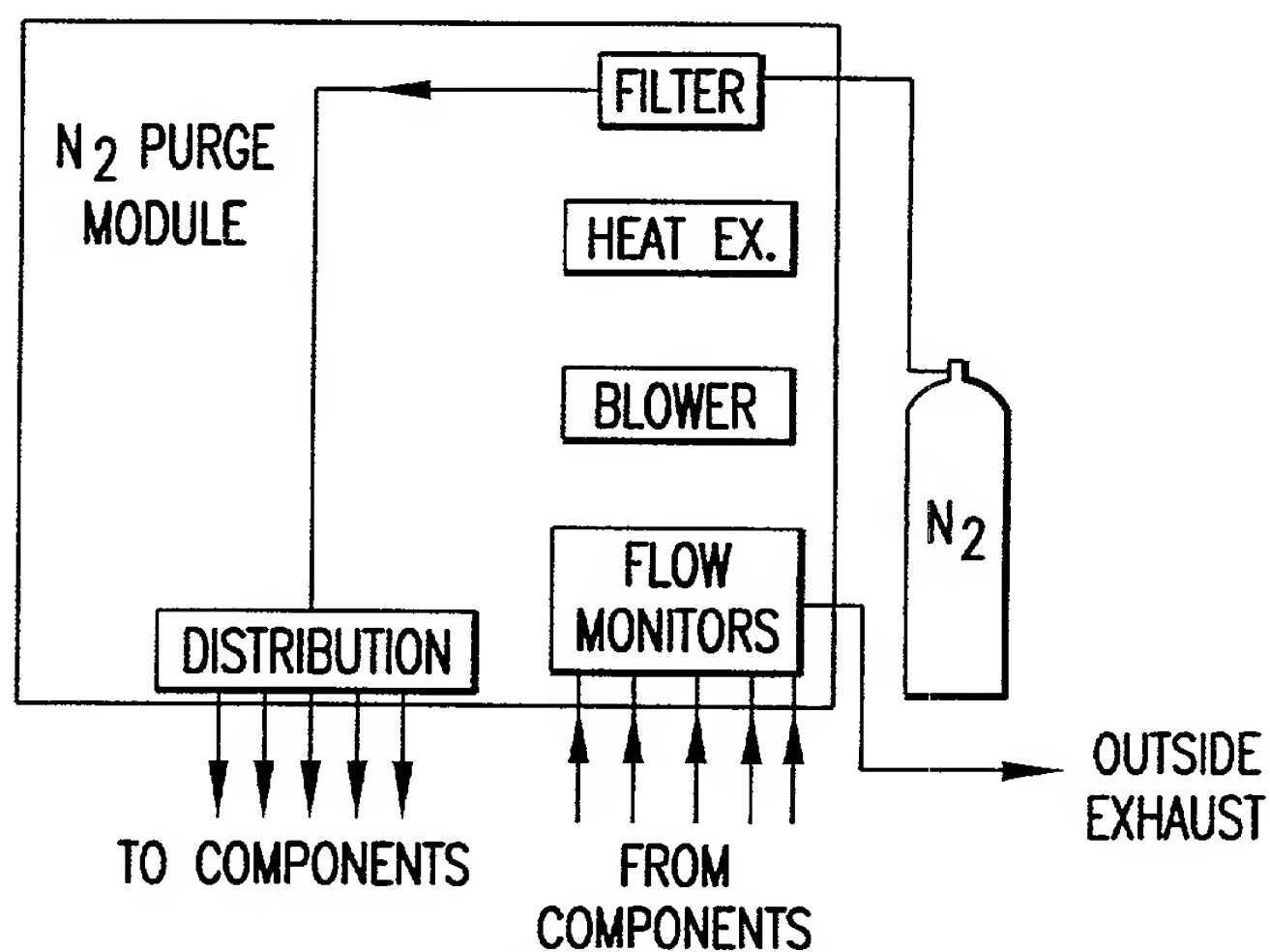


FIG.19B



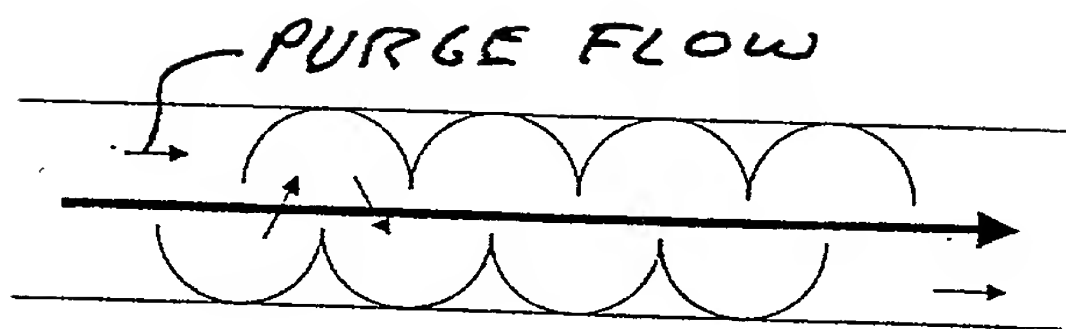


FIG. 19C1

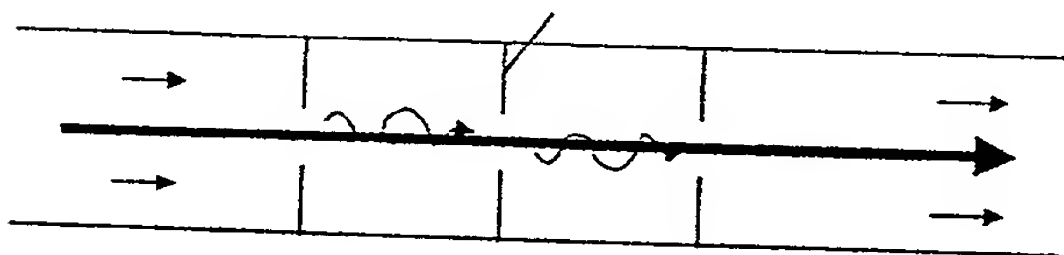
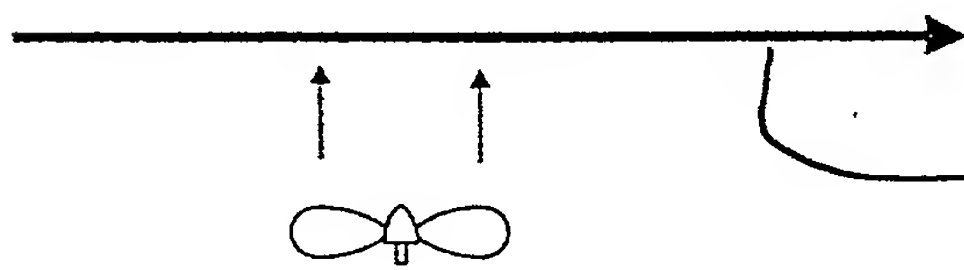


FIG. 19C2



LASER  
BEAM

FIG. 19C3

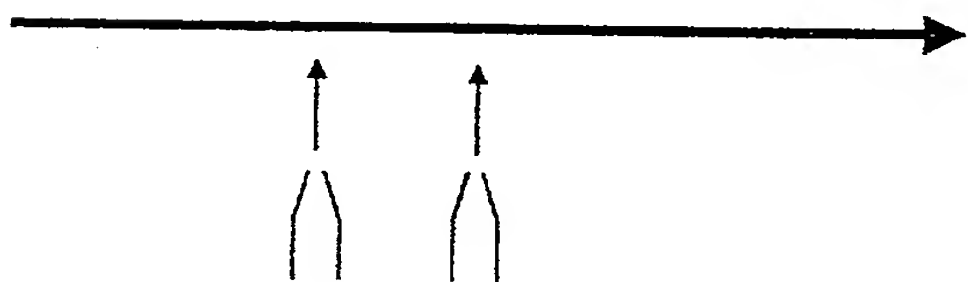


FIG. 19C4

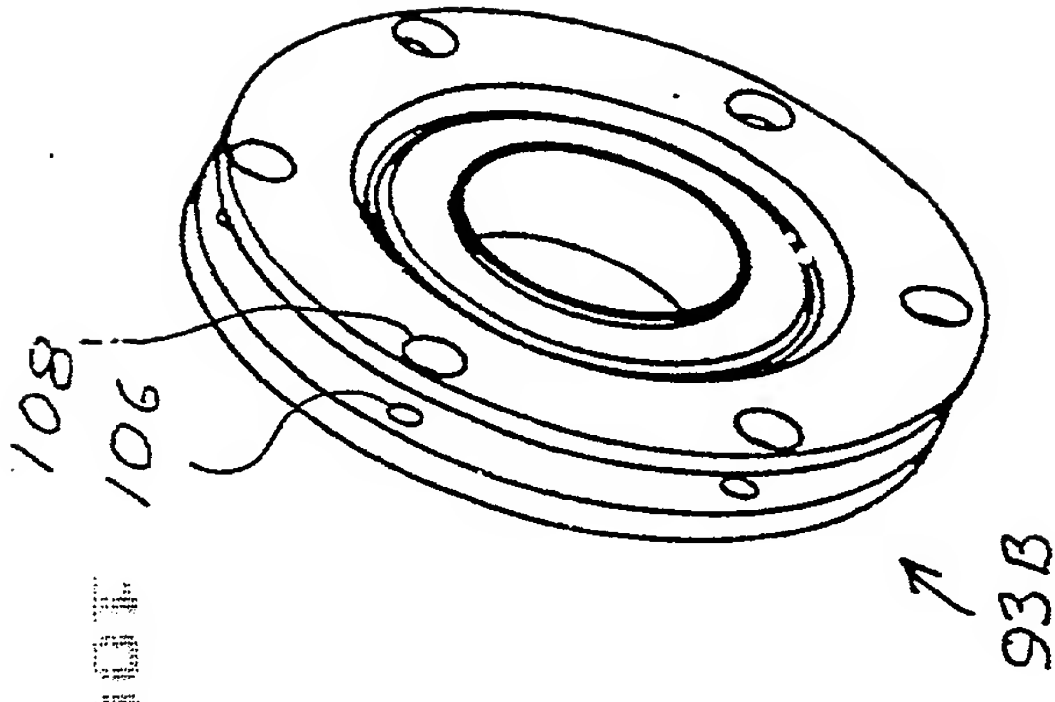


FIG. 1902

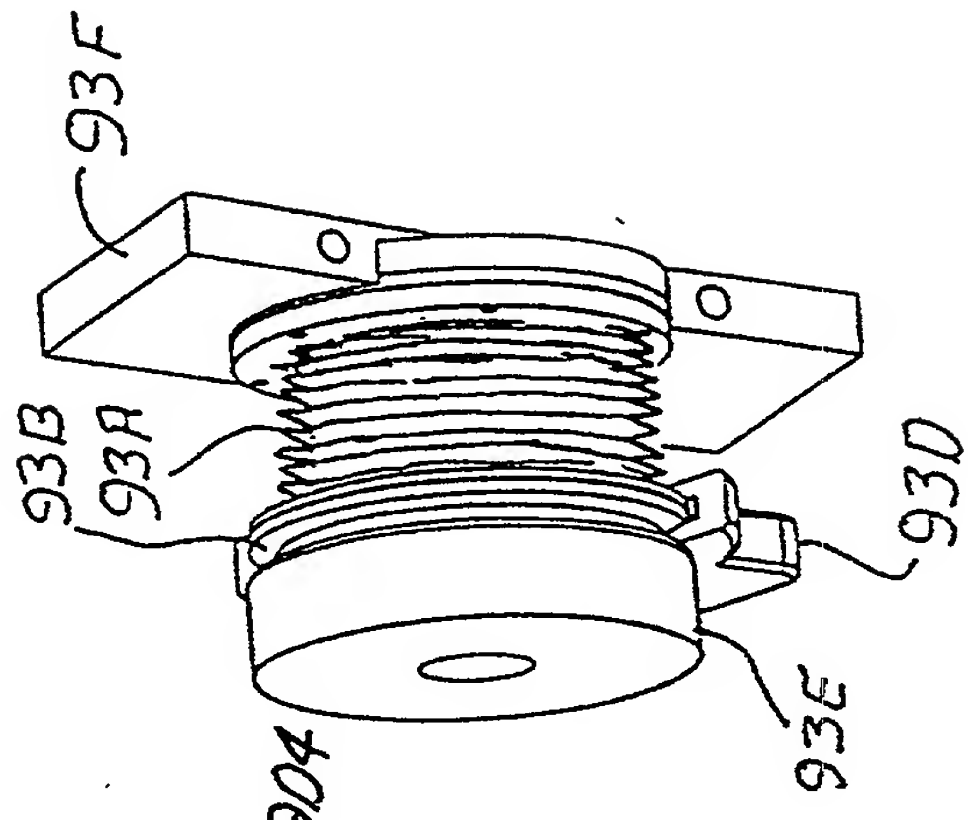


FIG. 1904

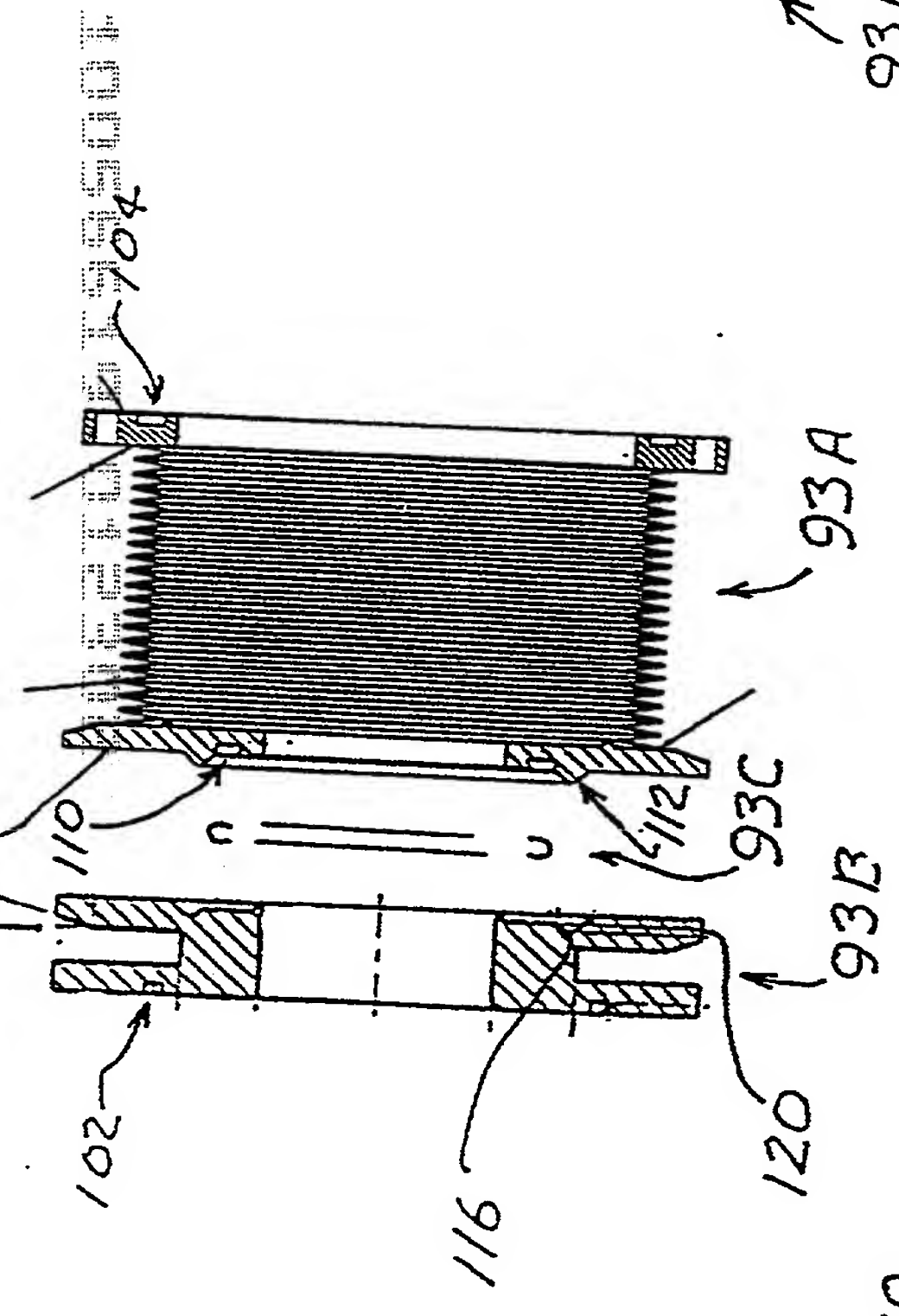


FIG. 1901

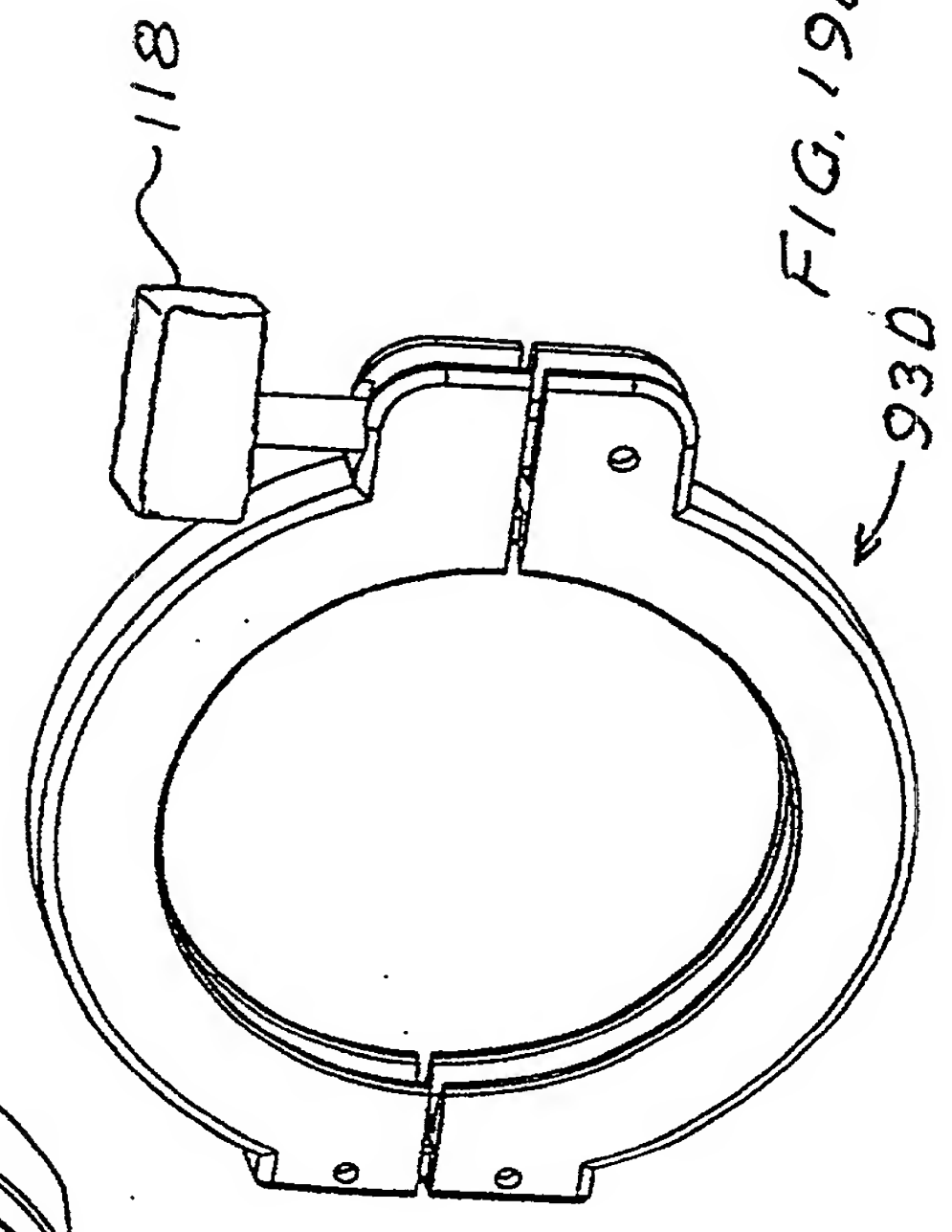


FIG. 1903

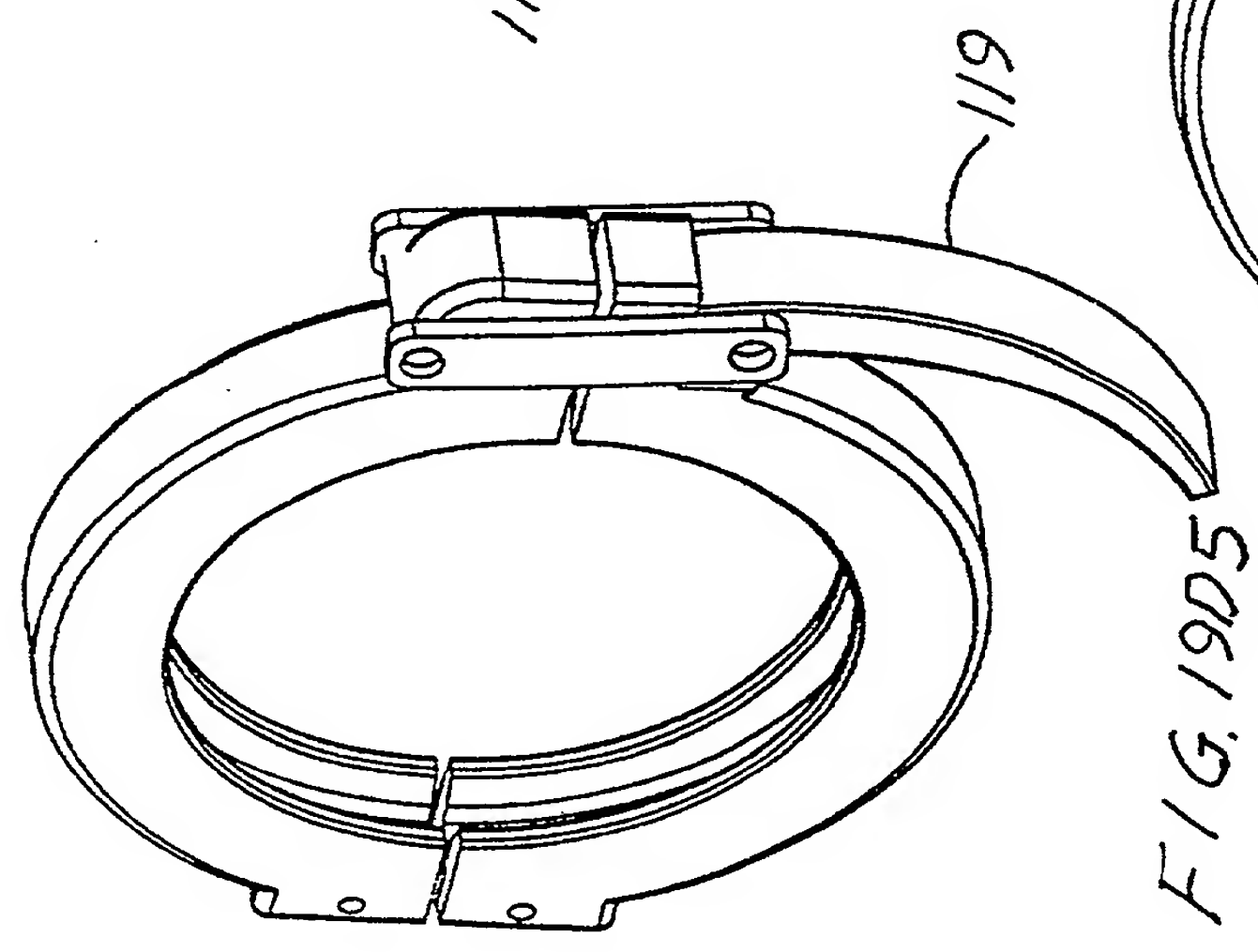
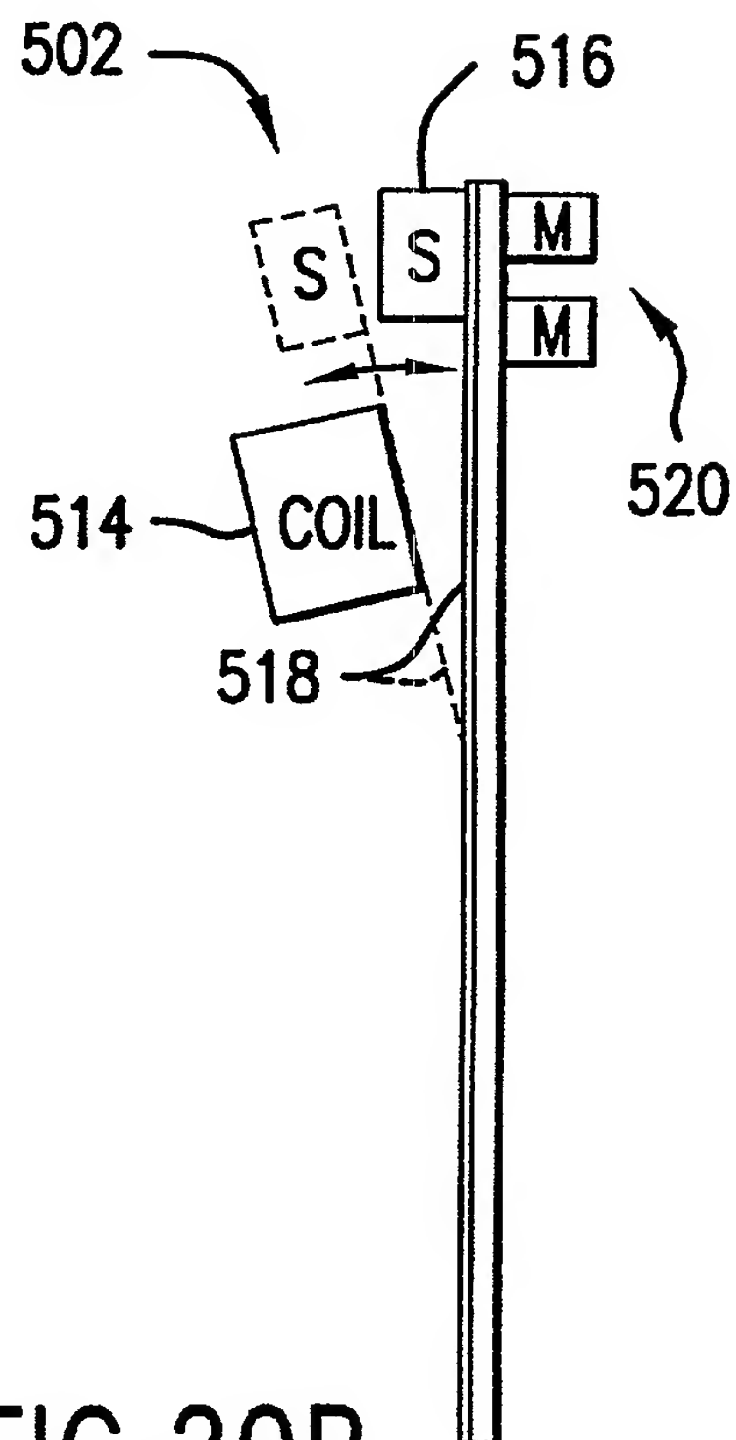
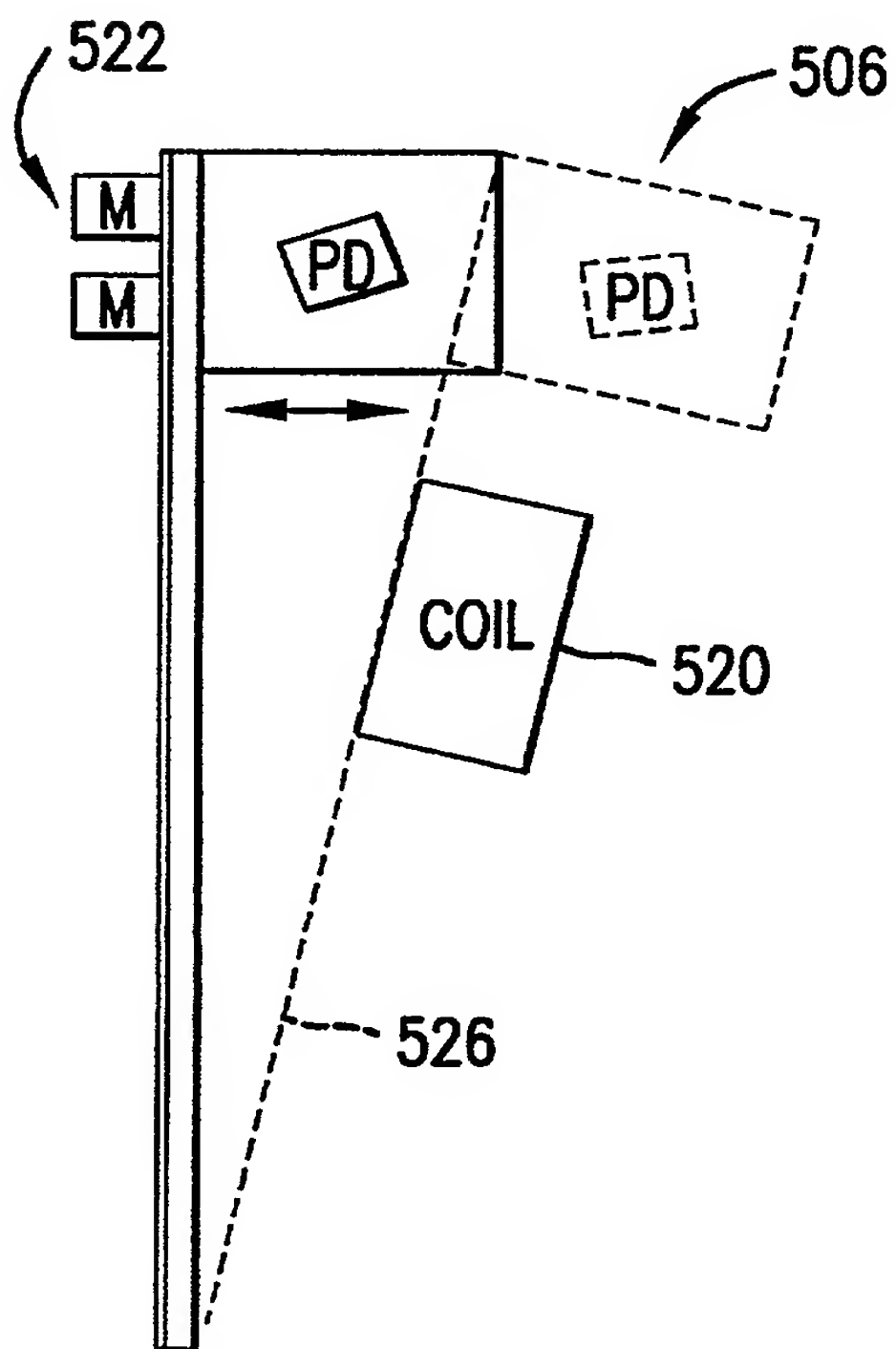
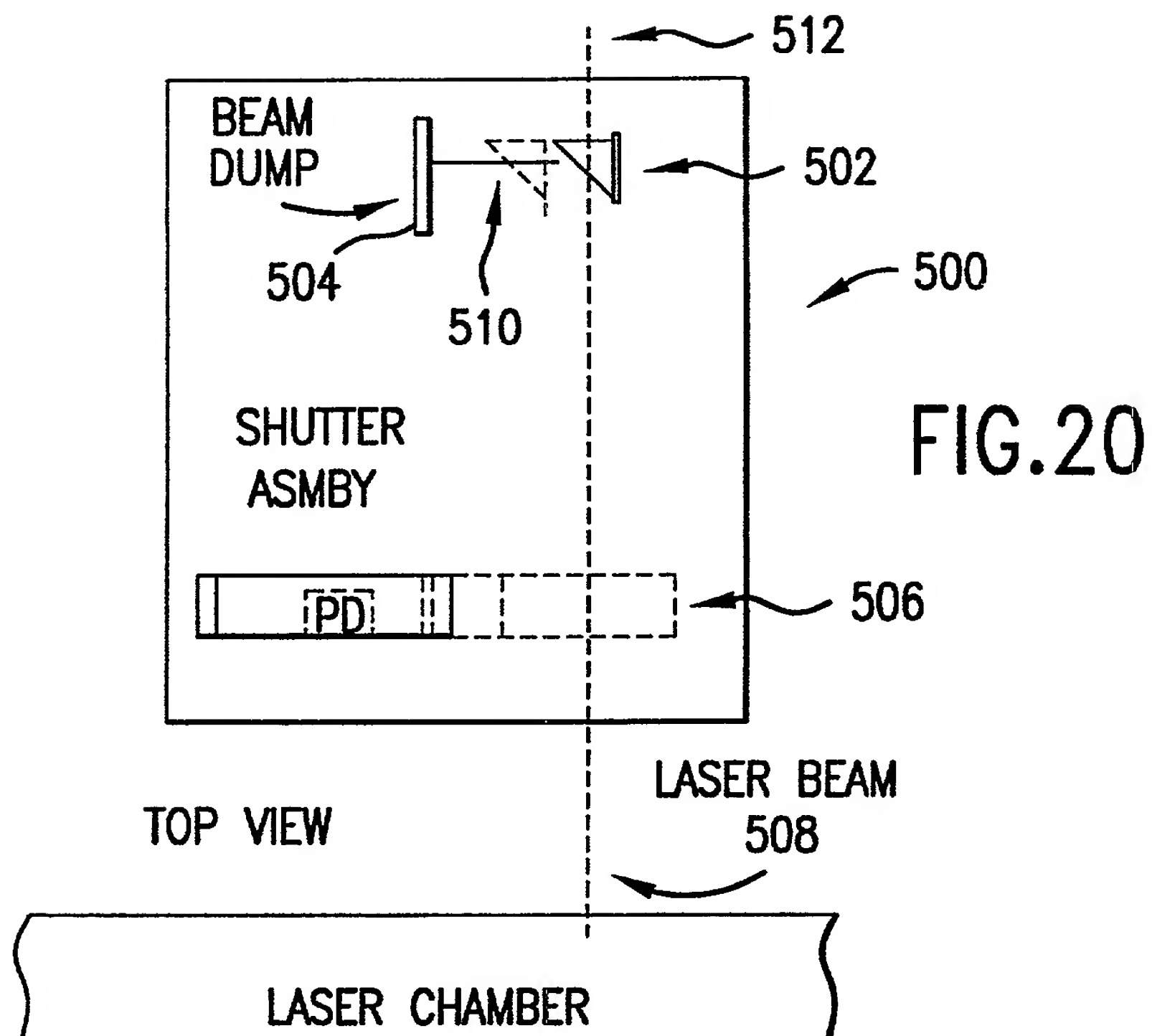


FIG. 1905



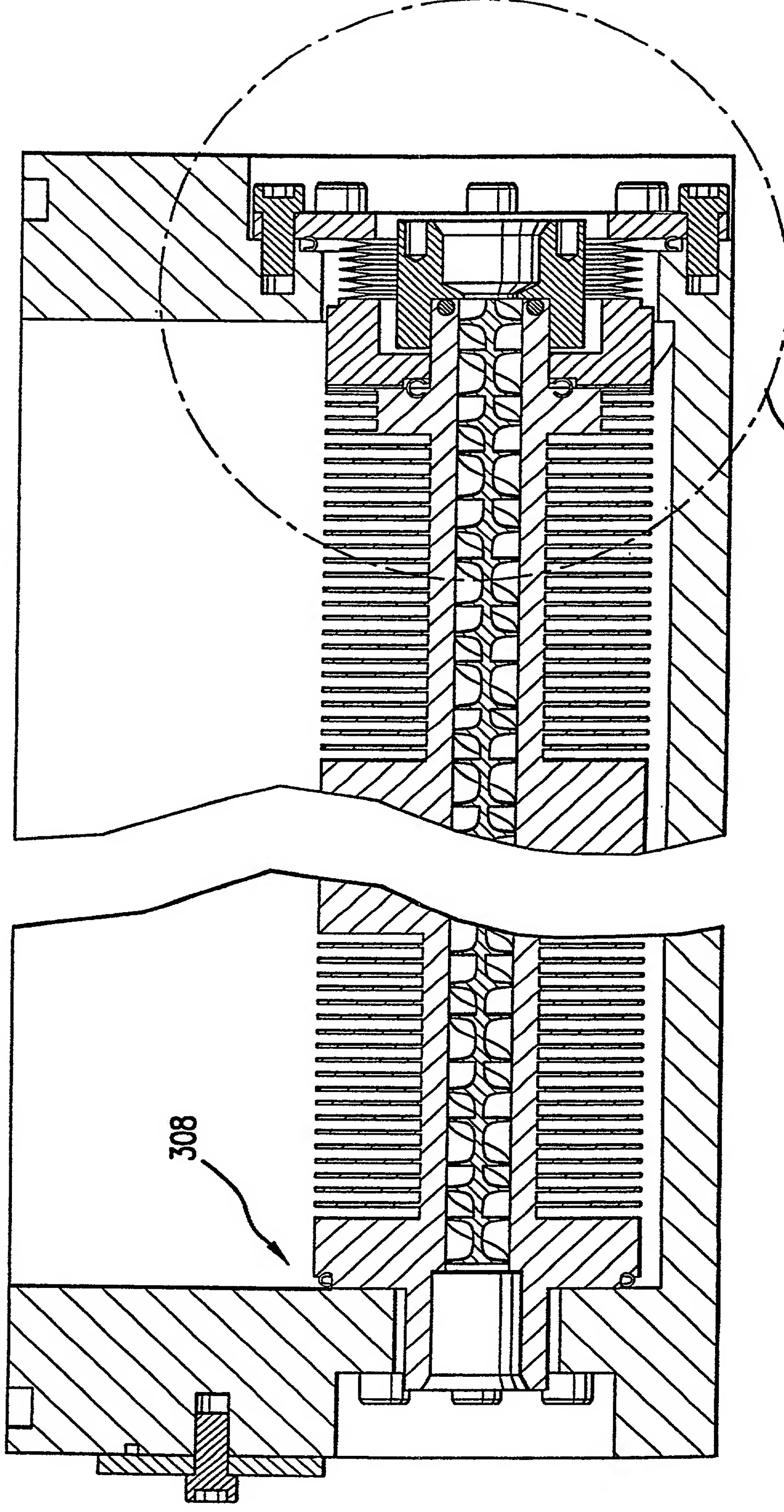


FIG.21A

FIG.21

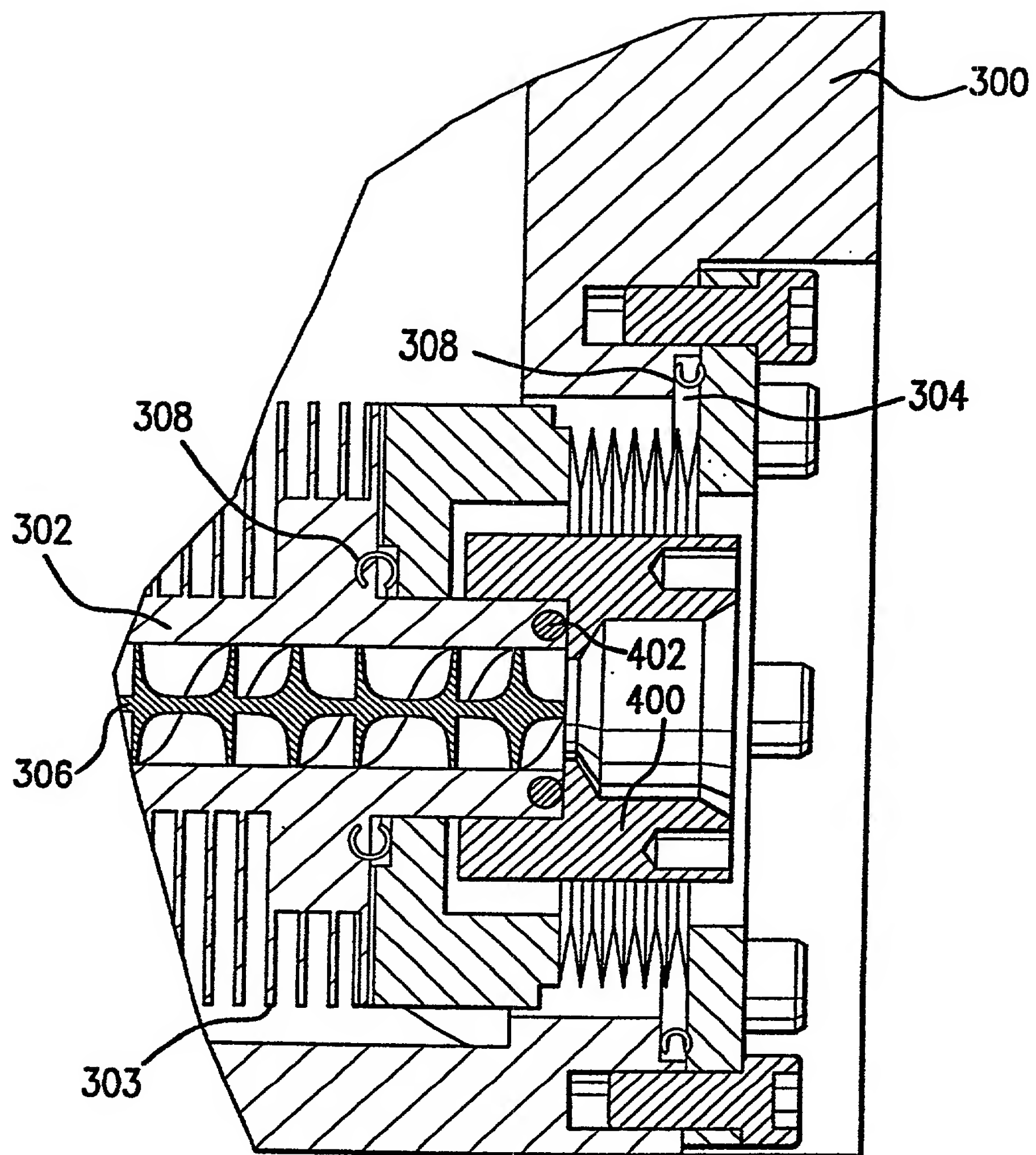
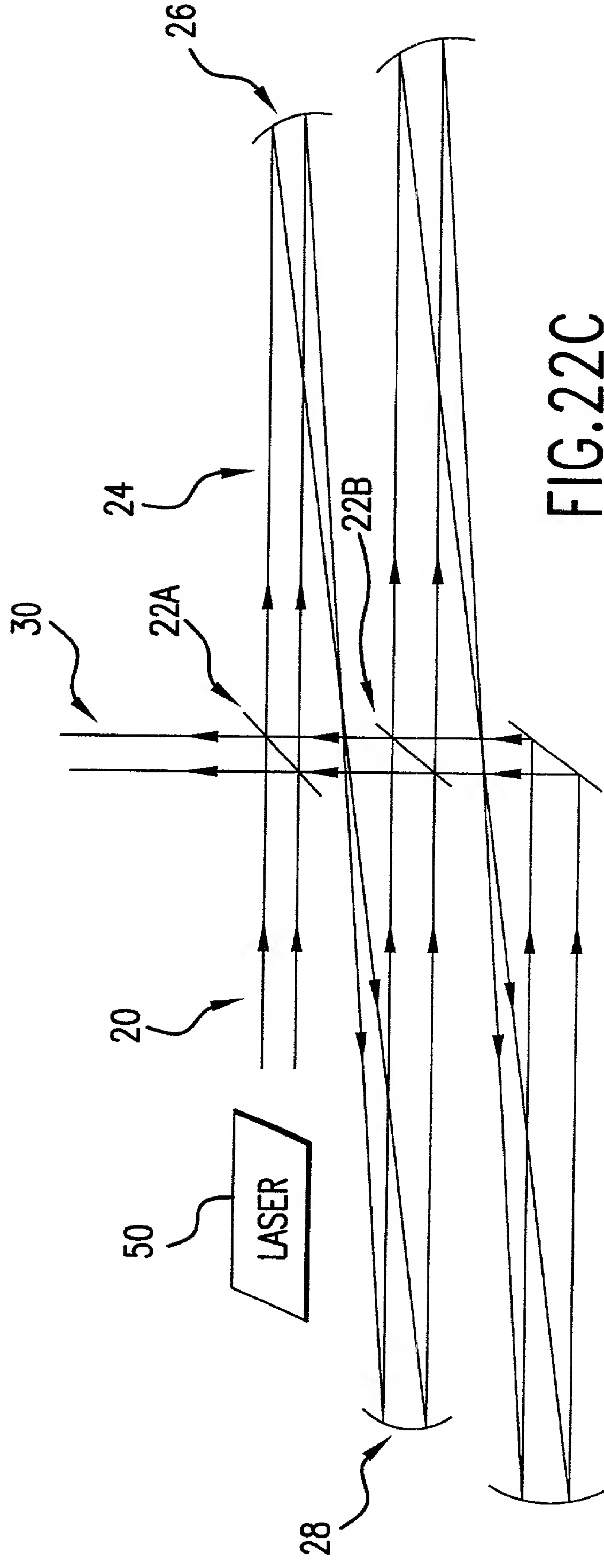
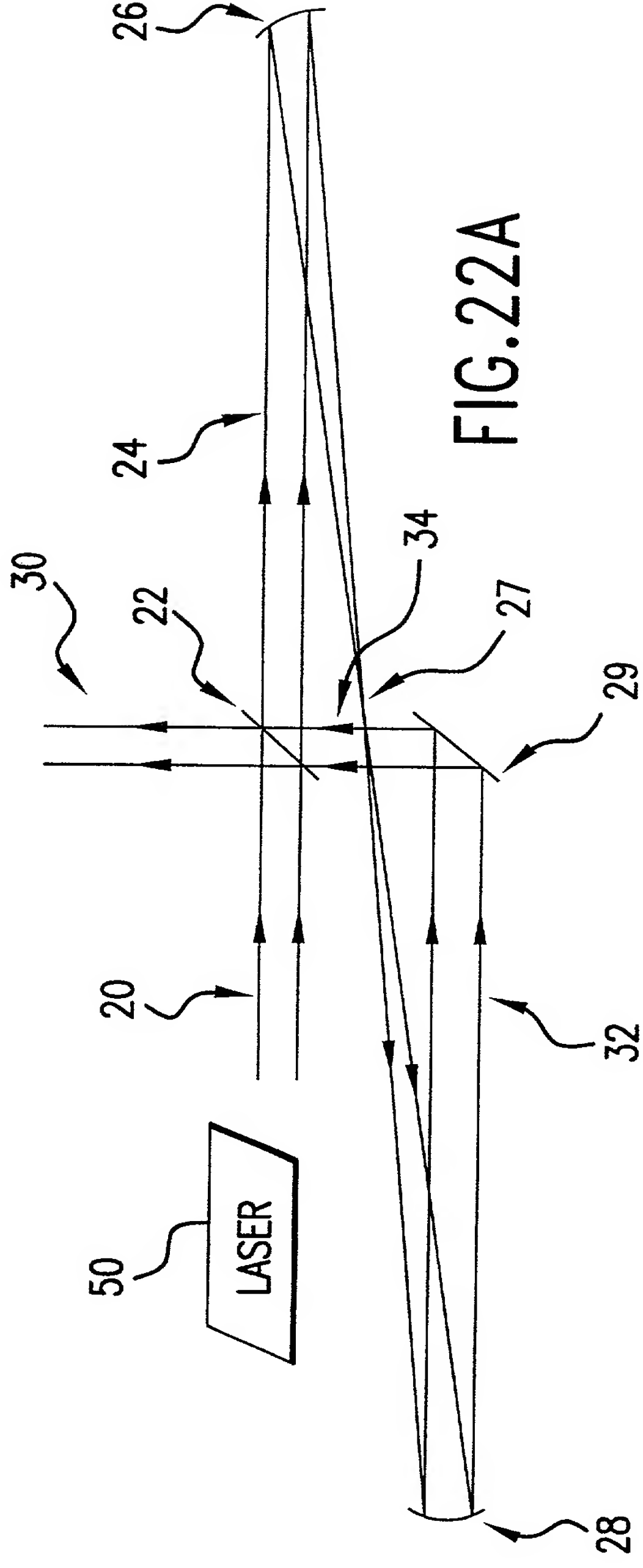


FIG.21A



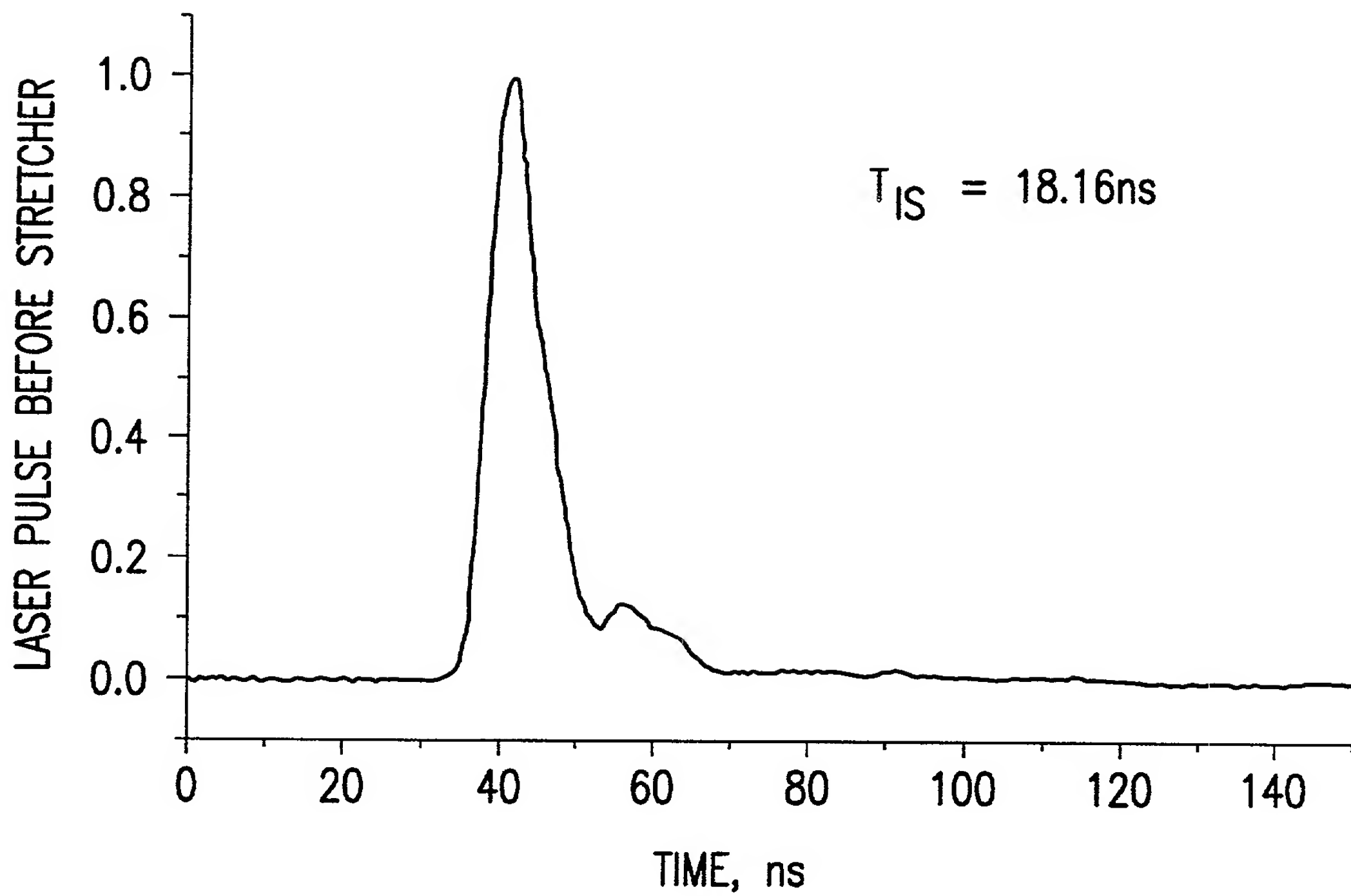


FIG.22B1

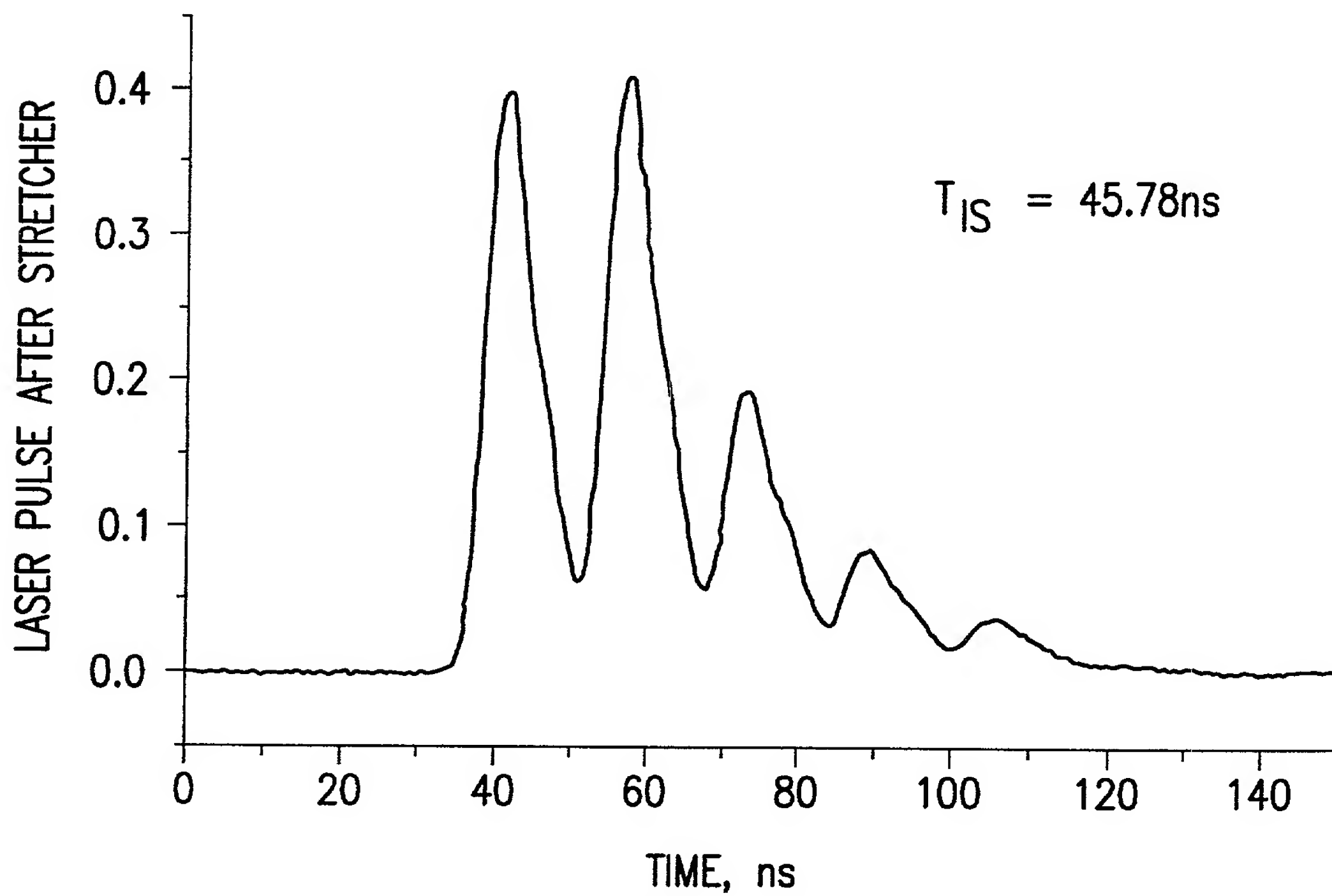


FIG.22B2

42.







# TIR SPATIAL FILTER TRANSMISSION FUNCTION

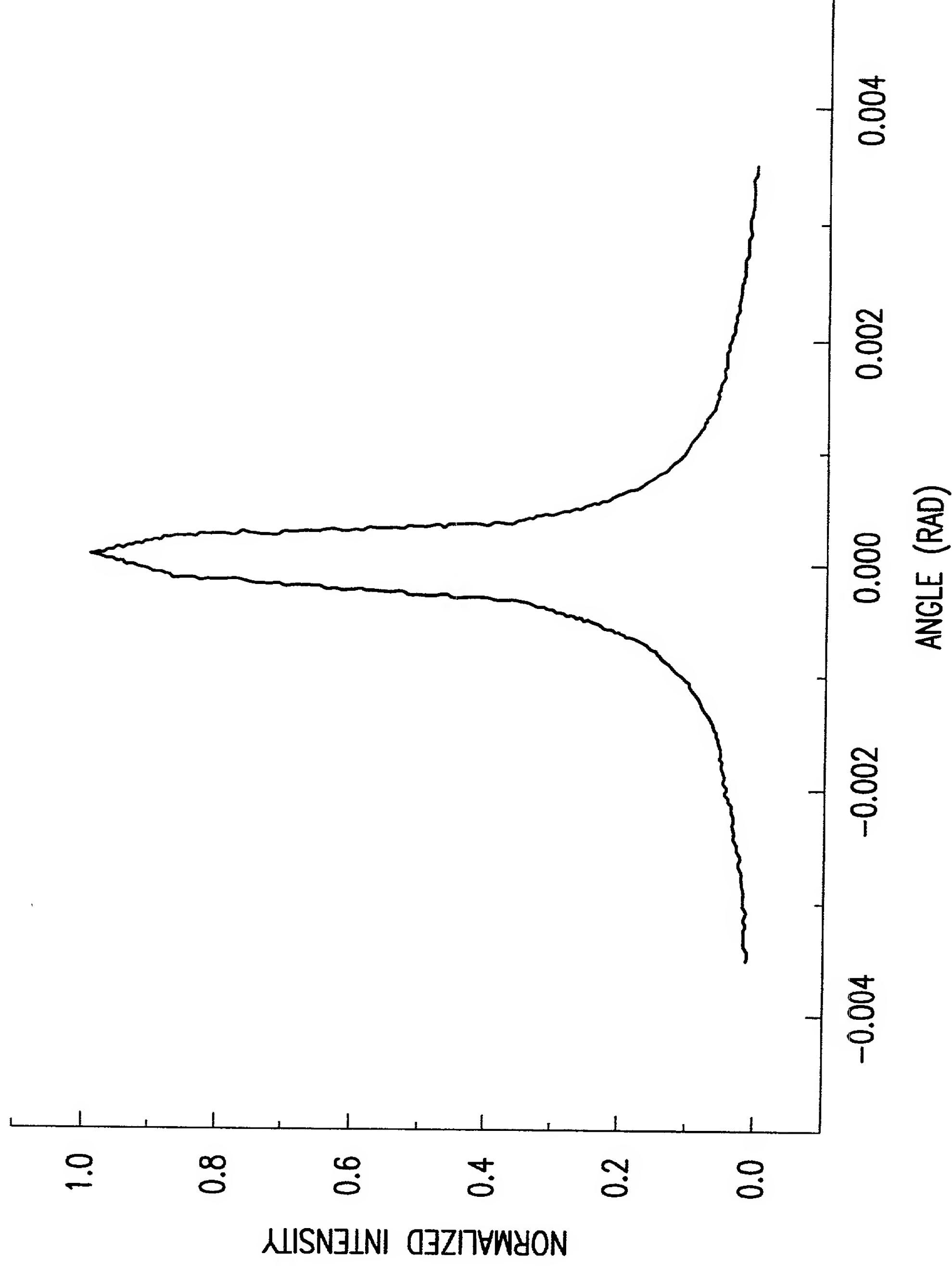


FIG.23A

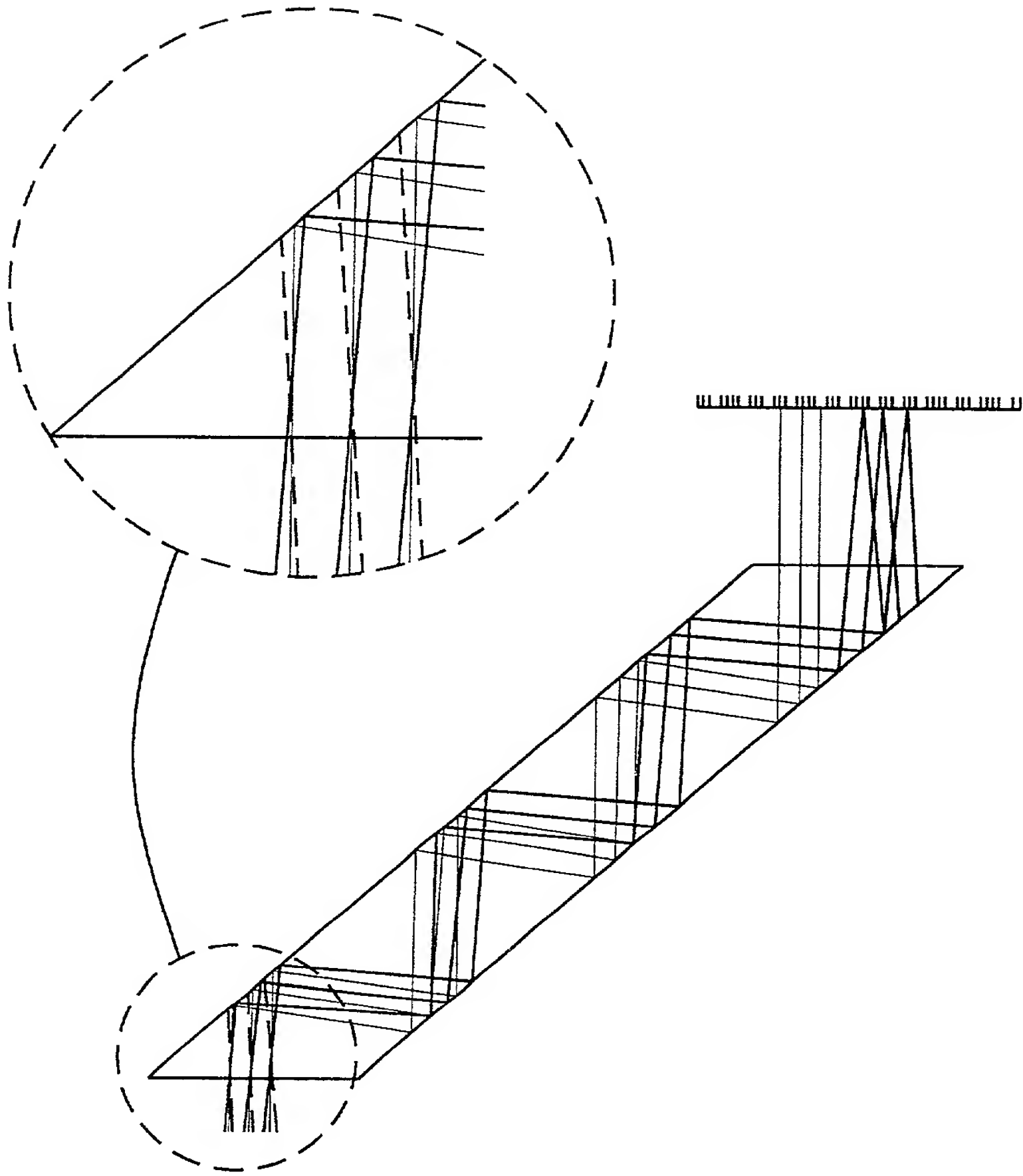


FIG. 23B